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The London New Issue Market[1]

By F. W. Paish

Although it has only recently been realised that Alice in wonderland is a major source of information on mediæval history, it has long been known, on the very best authority, that a detailed acquaintance with Alice is essential for a proper understanding of economic theory. It is, therefore, not without some fear of being thought presumptuous that I venture to say that at this moment I feel a little like Alice herself. You will remember that, after passing through the looking-glass and walking a little in the garden, she was invited by the Red Queen to join in a game of chess in the capacity of a pawn; and that, with the help of much kindness, a great deal of good advice and, at worst, the toleration of her fellow-pieces, she gradually progressed across the board until, jumping her last ditch, she found herself, suddenly encumbered with a crown, undergoing a searching qualifying examination at the hands of her companion queens. So, I, too, after many years of kindness, good advice or, at worst, toleration from my fellow-teachers, having jumped my last ditch and finding myself suddenly encumbered, if not with a crown, at least with a chair, stand here this evening undergoing my examination before my colleagues, some at least of whom were queens before I was even a pawn. I can only hope that, unlike Alice's queens, they will not feel obliged to go to sleep before the examination is completed.

And I think the resemblance can be pushed even a little further. You will remember that, after her examination, Alice proceeded to her castle and that, after a most unsatisfactory dinner, she saw her castle shake, collapse and vanish into nothingness. So I too, when I get to my castle—part of which is the subject of my lecture this evening—find it, if not threatened with actual dissolution, at any rate dwarfed and in danger of being squeezed out of existence by an enormous block of government offices which is sprouting and spreading on all sides of it.

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[1] Inaugural lecture delivered at the London School of Economics on November 5th, 1950.

This threatened eclipse of my castle is the more remarkable in that much of it is quite new, and that within the last generation the whole building has been overhauled and renovated almost out of recognition. When, scarcely a generation ago, Lavington wrote his great book on *The English Capital Market*, the substantial use of the new issue market as a means of providing finance for British industry was an extremely recent development. Before 1914 the main business of the London new issue market was foreign investment. Estimates of the annual total of British net investment differ considerably, but if we put gross investment at £550 Mn. and allow £200 Mn., or between 8 and 9 per cent. of national income, for the cost of maintaining capital intact, this would leave us £350 Mn. for net investment. This figure is from £50 Mn. to £100 Mn. less than some contemporary estimates, but these seem to allow a quite inadequate margin for depreciation. Even the figures I have suggested mean gross investment equal to over 23 per cent. of national income, and net investment of nearly 15 per cent., almost entirely financed out of private saving and probably considerably more than half of it out of personal saving.

Of the estimated total of net national investment at least half, and in some years appreciably more than half, was invested abroad. Since direct private investment abroad, together with net short-term foreign investment, was probably not much greater than the annual amortisation quotas and repayments of existing loans, almost the whole of net foreign investment can be taken as represented by new long-term issues on the London market, which at their peak reached an annual total of about £200 Mn. Of net investment at home, on the other hand, only a small proportion—not more than £30 Mn. or so out of a total of £150 Mn. or more —was financed through the capital market. The remainder was financed either out of profits ploughed back or out of personal savings invested directly.

The small scale of the new issue market in home securities, and of many of the individual issues, was no doubt the reason why the great merchant bankers, who were responsible for the great bulk of the issues on overseas account, took little interest in it, apart from occasionally sponsoring a large issue of railway or public utility securities. The issuing of home industrial securities was in general left to the company promoter or *ad hoc* syndicate; and, though there were no doubt numerous sound issues by reputable companies, only too often the chief purpose in making an issue was to provide the maximum of quick profit to promoters and vendors. As Foxwell said in his famous lecture on "The Financing of Industry and Trade," delivered at the Royal Institution in April, 1917, in which he compared British methods unfavourably with those of Germany :

"In the description of German banking just quoted stress is laid on the important part it plays in the business of issue and flotation. Here we have one of the most striking contrasts with English practice. This delicate business, which *we* leave to the company promoter, is the special care of the banks in Germany, where the company promoter scarcely exists. The banks, with their large staff of industrial experts, not to speak of the many highly trained men they have on their boards of directors, are able to give the most intelligent examination to all schemes put before them ; and to insist, before they accept any new proposition, that the necessary provisions are made, whether as to capital resources, management, or scientific assistance, to ensure that the undertaking shall have a fair prospect of success. The company promoter, like Gallio, cares for none of these things. His concern is simply with the profits of the promotion. As soon as he has contrived to get his issue quoted at a premium, and his underwriters have unloaded at a profit, his interest in the enterprise ceases. 'To him', as *The Times* says, 'a successful flotation is of more importance than a sound venture'".[1] And again, the facilities provided by the promoter are "mere makeshifts, utterly inadequate".[2] In the temperate words of Lavington, it is not difficult to see that the promoter's "methods of operation contain within themselves strong tendencies to overvaluation and to heavy marketing costs".[3]

If we compare conditions to-day with those of which Foxwell and Lavington wrote we shall find some very remarkable improvements. These are due partly to the tightening-up of the law governing new issues. The main outlines of the present law had already been laid down in the 1908 and earlier Acts ; but the wording of these offered many loopholes to the unscrupulous, of which full advantage was taken, though not quite always with impunity, during the new issue boom of the late 1920's. The more stringent provisions of the present law fall into three main categories. First, there are those designed to improve the machinery of the new issue market, such as those providing for a three-day interval between advertisement and issue and for making all applications for new securities firm for three days. Secondly, companies are now obliged to give much fuller information, both about their own condition and records and about their recent contracts outside their usual business, including contracts with vendors, issuing houses and others connected with the issue. And thirdly, it has been made much more difficult for directors and others to escape responsibility for the accuracy and adequacy of information published under their authority. Thus the subscribing public and its advisers are put in a much better position not only to judge the intrinsic merits of an issue but also to ascertain if any of those connected with it are making an unreasonable profit.

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[1] *Economic Journal*, December 1917, p. 514.
[2] *Loc. cit.*, p. 510.
[3] F. Lavington, *The English Capital Market*, 1921, p. 213.

Perhaps even more important than are the changes in the law is the immense extension of the control exercised by the Stock Exchange over the quality of the securities dealt in on its floor.[1] Before 1914 the Stock Exchange made no attempt to restrict or control in any way the right to deal in any security, whether British or foreign. Only for the fraction of new issues for which a special settlement was asked, and for the still smaller fraction for which an official quotation was sought, did the Committee of the Stock Exchange impose any conditions whatsoever ; and even for these, though its requirements went in some respects beyond those of the then Companies Acts, it was in general more concerned with arrangements to ensure a reasonably free market in the new securities than with the intrinsic merits of the company or with the adequacy or accuracy of the information provided.

When the Stock Exchange, closed at the outbreak of war, was re-opened in 1915, the Government required that transactions should be recorded in all securities, whether on the official list or not. Thus it became necessary to publish a Supplementary List, recording bargains in hitherto unquoted securities. In 1921 Stock Exchange regulations were issued covering for the first time the granting of permission to deal and the consequential right to a quotation in the Supplementary List. These regulations, though less stringent than for admission to the Official List, provided for the publication of a statement in lieu of prospectus for securities for which no prospectus had been issued.

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[1] I am indebted for part of the following information to an unpublished thesis by Dr. N. D. Vandyk on "Economic Aspects of Company Law Reform, 1908–48."

After the collapse of the 1928 boom, the rules for admission to both lists were greatly tightened up, and thereafter all applications either for permission to deal or for an official quotation were more closely scrutinised, from the point of view not only of the arrangements made to secure a free market, but also of the adequacy of the information to be published and of the records of all persons connected with the issue, whether as vendors, issuers or underwriters. It is largely to the result of these changes, together, perhaps, with the increased vigilance and efficiency of the financial press, that we can attribute the freedom of the new issue boom of 1937 from the scandals which had marked that of 1928.

By the end of the recent war the distribution of securities between the Official and Supplementary Lists had become largely a matter of historical accident, and it became clear that their continued separation would serve no useful purpose. In 1947, therefore, they were amalgamated, and the distinction between an "application for permission to deal" and an "application for an official quotation" was abolished. Thenceforward the conditions for the granting of an official quotation applied to all applications, and indeed were further stiffened up, particularly by the requirements that all applications must have the support of two jobbers and that the profits record must be shown for the past ten years, as against the five years required by the 1948 Companies Act. At the same time the hands of the Council were still further strengthened by the requirement in the same Act that, if it is stated in a prospectus that application for permission to deal will be made to the Stock Exchange, and if that application is either not made or is refused, then all subscriptions to the issue must be refunded in full. This means, in effect, that it is impossible to make an issue to the public without first submitting it to a searching examination by the skilled and experienced officials of the Stock Exchange, in order to ensure that the possibility of the rejection of an application is reduced to the absolute minimum. In considering an application, the Committee on Quotations can take account, not only of the adequacy of the information provided, the intrinsic merits of the issue, the records of the participants, the arrangements made to secure a free market, and the reasonableness of the profits to be made by participants or vendors, but also of the method by which the issue is made. They have, for instance, let it be known that they would not look favourably on an application for a quotation for a privately-placed issue unless a public issue would have been unduly expensive by reason of its small size.

Of at least equal importance with the changes in the law and in the strictness of Stock Exchange regulations are the changes in the organisation of the new issue market. After the 1914–18 war, the rise in prices and the increased levels of taxation, not only of company profits but also of large incomes and deceased estates, obliged companies to supplement private investment and profits ploughed back by large-scale recourse to the market. The results of the new issue booms of 1919–20 and of 1927–28 revealed only too clearly the inadequacy of the old machinery for its new tasks, and public losses from rash, over-expensive and sometimes dishonest flotations were high. But the booms, which revealed the weaknesses of the old system, also helped to bring their remedy. Each of the periods of increased activity in the new issue market saw the establishment of a number of a new type of issuing house, specialising mainly in the sponsoring and conduct of new issues by home industrial concerns, particularly those of smaller size. At the same time certain of the older merchant banks began to find it possible to extend their interests from the shrinking business of making large overseas issues to the growing market for home issues. In 1945 the two types of issuing house joined forces to set up an Issuing Houses Association, largely to represent the interests of issuing houses in discussions with the Capital Issues Committee and other bodies. The Association has to-day some fifty-four members,[1] of which rather less than half may be classified as merchant banks and rather more than half as members of the new type of issuing house. The contrast between the origins of the two groups is shown by the fact that, whereas more than three-quarters of the merchant-bank members were founded before 1914, only one-sixth of the issuing houses were in existence before that date. Of the remainder, five were founded between 1917 and 1921, nine between 1925 and 1928, and eight between 1932 and 1936—all periods of high or expanding activity in the new issue market for industrial securities.

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[1] This, and much of the following information, has been extracted and compiled from *The Times Issuing House Year Book*, 1949 and 1950.

In the types of business done, the two classes of issuing house show considerable differences as the accompanying table shows. Since the war the new issuing houses have made more than twice as many issues as the old merchant bankers, but the aggregate amount of money raised through the merchant bankers is more than fifty per cent. greater, so that the average size of a merchant banker's issue is more than three times as large as that of a new issuing house—about £1,000,000, as compared with about £300,000. It is also noticeable that the average size of the small proportion of new issues made by merchant banks founded since 1914 approximates more closely to that of the new issuing houses than to that of the old merchant bankers. Thus it would seem that the issuing institutions established since 1914 tend to specialise on issues by relatively small companies, while the old merchant banks are interested mainly in the larger ones.

ISSUE OF INDUSTRIAL SECURITIES, 1946–49[1]

	Prospectus and Offer for Sale		*Placing and Introduction*		*Shareholders Only*		TOTAL	
	Number	Value (£ mn)	Number	Value (£ mn)	Number	Value (£ mn)	Number	Value (£ mn)
Old Merchant Bankers	55	67	111	63	89	128	255	258
New Merchant Bankers	3	6	17	7	6	1	26	14
Other Members of the Issuing Houses Assn.	140	67	269	64	141	34	550	165
South African Finance Companies	3	1	5	1	40	52	48	54
Other Issuing Houses . .	20	12	49	12	36	9	105	33
Total Issuing Houses . .	221	153	451	147	312	224	984	524
Stockbrokers	74	44	396	106	359	155	829	305
Total	295	197	847	253	671	379	1813	829

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[1] Issues from April, 1946, to December, 1949, omitting issues of securities by public authorities and public utilities, bonus issues and conversion issues. Issues shared by two issuing houses are credited to the first named.

Extracted and compiled from *The Times Issuing House Year Book*, 1949 and 1950 editions, with the help of the Economics Research Division of the London School of Economics.

Issues made by members of the Issuing Houses Association dominate the market, with well over 80 per cent. of all issues made by issuing houses, both by number and by value. Of the remaining issues, nearly two-thirds by value are made by South African mining finance companies, all within their special field, leaving only a little over 5 per cent. for other issuing houses who are not members of the Association. In addition to issues made by issuing houses, nearly half the total number of issues is made by stockbrokers without the help of issuing houses. The average size of these issues is, however, much smaller than that of issues made by issuing houses, so that by value they amount to only about a third of the grand total of all issues. They consist largely of issues to shareholders only and of Stock Exchange introductions, together with a certain number of Stock Exchange placings, usually of modest size. The number of issues to the public, whether by prospectus or offer for sale, made without the help of an issuing house is small, apart from issues by U.K. and Commonwealth public authorities made through the Bank of England or other agents.

The result of this brief examination of the organisation of the market for new industrial issues seems to lead us to the conclusion that the great majority of new public issues, and of the larger Stock Exchange placings, are now sponsored and organised by permanent and responsible concerns which are interested, not so much in maximising the profit they make on any particular operation as in establishing and enhancing their own good name and reputation. It is known that at least the great majority of issuing houses take great care to satisfy themselves about the records and prospects of the companies which approach them for their assistance in raising new capital. No doubt there are occasions when an issuing house, anxious not to let slip an opportunity for profitable business, will agree to sponsor an issue which hardly comes up to its usual standard; or when reckless or dishonest directors, aided perhaps by the unduly restricted view of their functions taken by some auditors, succeed in deceiving the officials of the issuing house and the Stock Exchange, as well as the public. But on the whole it can be said without hesitation that, while no investor can be guaranteed immunity from the inevitable risks of business, still less from the risks of national and international politics, the type of reckless or fraudulent issue which too often disgraced the first three decades of the century is now extremely rare, and that, when it is made, it is unlikely to be made with impunity.

The development of the issuing houses, in fact, seems to have resulted in a system which almost exactly fulfils the recommendations of the Macmillan Committee, that " relations between finance and industry should be so developed that issuing institutions of first-class strength and repute should vouch to the investor more normally and more fully for the intrinsic soundness of new issues. In this way the investor would be encouraged to support well-vouched issues and be put on his guard against others."[1] The present system also seems to have most of the advantages that Foxwell claimed for industrial banking, without the disadvantages inherent in the German system, which became so manifest in 1931. The British houses sponsor, but, except to a limited extent in preparation for a new issue, they do not in general themselves finance. They risk their reputations and good names, but not, in general, customers' deposits. Even the severest economic or financial crisis, while no doubt inflicting heavy losses on investors, would not imperil the security of bank deposits or lead to that collapse of bank credit which utterly paralyses the whole economic system.

There is one further addition to the machinery of the new issue market which has not yet been described. This is the Capital Issues Committee, which is charged under the Borrowing (Control and Guarantees) Act of 1946 and the ancillary Treasury Orders with the duty of passing under review all issues in excess of £50,000. I do not think that the activities of this Committee are particularly relevant to the aspect of the question which is at present under discussion. Its main duties are to prevent, not issues which might lose money for those who invested in them, but those which might perhaps divert resources to uses officially regarded as of insufficient priority or which might facilitate tax evasion. No doubt there are some issues which are both unduly risky and of low social priority, and it may well be that some of the more fantastic issues of the 1928 boom would have been disallowed by a capital issues committee working under present instructions. In conditions as they exist at present, however, it is not very likely that the efforts of the Capital Issues Committee are saving the public from losing money on many unsound issues that have passed the scrutiny both of an issuing house and of the Stock Exchange. From the point of view of the market, the Capital Issues Committee must be regarded mainly as one more factor making for delay in the already lengthy process of bringing out a new issue.

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[1] Cmd. 3897 (1930–31), p. 168.

If we take into account the combined effects of the improvements in the law, of the infinitely stricter control on Stock Exchange introductions, of the emergence of the new issuing houses and of the adaptation of the old, I think that it can reasonably be claimed that during the last generation this castle of mine has been so improved and modernised that it is to all intents and purposes a new building. To change the metaphor, the emporium has been rebuilt and re-equipped regardless of expense; in its air-conditioned halls the counters gleam with glass and chromium; the goods for sale are ample in supply and variety, prepared under hygienic conditions, clearly labelled with full descriptions of their contents and attractively displayed; the shop-assistants, scientifically trained and hygienically clothed, stand awaiting business. But where are the customers?

The most superficial glance at the turnover figures of the new issue market reveals that it is doing nothing like the volume of business that it was forty, or twenty, years ago, even in money terms, and still less in terms of money with an unchanged purchasing power. The longest continuous series of new issue figures available is that published by the Midland Bank, which omits not only Government securities and bonus and vendors' shares but also re-sales of long-held shares by existing shareholders and conversion issues. While, however, this series covers only a part of the total activities of the market, it may probably be taken as a reasonable index of the whole, of which, apart from Government and bonus issues, it has in recent years formed about two-thirds.

Excluding the 1948 issue of £100 Mn. of stock by the British Electricity Authority, which from the point of view of the market should count as a Government issue, the Midland Bank's figures of new issues in 1948 and 1949 totalled £290 Mn., or £145 Mn. a year. The corresponding annual average for the five years ending 1937 was £163 Mn., and for the five years ending 1930 £284 Mn. Figures for the period ending 1914 are not available on exactly the same basis, but may be put at an average of over £200 Mn. If we estimate the present purchasing power of money at roughly half of what it was between the wars and a third of what it was before 1914 we find that the value of the 1948–49 issues was less than half of what it was in the 1930's, about a quarter of what it was in the late 1920's and less than a quarter of what it had been before 1914. If we express the figures as proportions of national income the fall is even more striking—from nearly 10 per cent. before 1914 to 7 per cent. in the 1920's, 4 per cent. in the 1930's, and less than 1½ per cent. in 1948–49.

Very little of the fall between 1913 and 1949 can be attributed (as perhaps can the fall in the 1930's) to an overall decline in the proportion of the national income being saved and invested. We have put net national investment in 1913 at about £350 Mn., or nearly 15 per cent. of the national income. In 1949, even after making full provision for the cost of maintaining intact in a period of rising prices not only fixed but also circulating capital, net capital formation at home amounted to nearly £1,400 Mn., or nearly 14 per cent. of the national income, and net capital formation at home and abroad to about £1,350 Mn., or about 13½ per cent. of the national income. Thus in 1949 total net national saving and investment amounted to nearly as large a proportion of the national income as it had done in 1913.

A better case can be made for attributing the fall in the importance of the new issue market to the change which has occurred in the origins of the almost unchanged proportion of national saving. While no precise estimates are available, it seems certain that in 1913 at least half, and in all probability more than two-thirds, of the nation's net savings consisted of personal savings, and almost the whole of the rest of business savings, while Government savings were negligible. In 1949, if we can rely on the latest official estimates[1] (who knows what retrospective changes next year's National Income White Paper may bring?), some £700 Mn. of net savings, or over half the total, were made by public authorities, mainly the central Government and the social security funds. Of the remainder, over £400 Mn., or nearly a third, were made by businesses, and only £200 Mn., or less than a sixth, by private individuals. Thus, while the proportion of total savings made by businesses showed little change, more than three-quarters of the savings

[1] Cmd. 7933.

formerly made by private individuals are now made by the Government.

It is true that there is no precise relation between the volume of net personal savings and the amount available for subscription to new issues. It is probable that a considerable part of the £250 Mn. of gross savings which were absorbed during the year in paying taxes on capital passed through the capital market on its journey to the tax-collector, and that some part of this no doubt went through the new issue market. It is also true that, while Government and business savings are probably not used on any large scale for subscription to new issues of non-Government securities, they can be made available to supplement the savings of private investors by purchases or repayment of old securities or by purchases of privately owned assets. Thus during 1949 some £200 Mn. of medium- or long-term debt seems to have been either redeemed or bought in by the National Debt Commissioners, while, in addition, some £200 Mn. of payments were made by the Government during the year on account of recompense for war damage and other capital transfers, of which some considerable part no doubt went to individuals. On the other hand, a large part of the investable funds of private individuals is ultimately invested otherwise than through the new issue market—in houses or farms, in private companies or other firms, or in other countries. All these conflicting influences may cause changes in the total of new capital issues to differ widely from changes in the total of personal net savings. Nevertheless, it is difficult to avoid the belief that these considerations merely modify rather than destroy the impression that there is a real connection between the volume of personal saving and the volume of new issues, and that it is to the fall in personal savings from perhaps nearly 10 per cent. of the national income in 1913 to barely 2 per cent. in 1949 that the decline in new capital issues from 10 per cent. to 1½ per cent. of national income must be mainly attributed.

There is some reason to believe that the customers of the new issue market have not only fallen in number but also changed in type. Considerable attention has recently been drawn to the fact that the shrunken annual total of net personal saving is now more than equalled by the annual increase in the funds at the disposal of institutional investors. There is, of course, no necessary connection between the annual growth of funds at the disposal of building societies, life insurance companies, and other investment institutions and the part they play in deciding the ultimate use of those funds ; for in so far as they use them to buy existing securities or other assets from personal holders they transfer back to individuals the responsibility for deciding what, if any, forms of capital creation these funds are ultimately to finance. Thus in 1949 the amounts advanced by building societies to finance the actual construction of new buildings were almost certainly considerably less than the £50 Mn. or so repaid to them as instalments under existing mortgage contracts, so that more than the whole of the year's increase of £115 Mn. in their total of outstanding mortgages must have been used to finance the purchase of existing houses, thus passing back to the sellers, mainly individuals, the responsibility for re-investing the proceeds. Similarly, it would have been possible for the life insurance offices to return the whole of the £190 Mn.[1] by which their funds increased in 1949 into the hands of personal investors by using them exclusively for the purchase of existing securities.

There is, however, other evidence to show that institutional investors are now playing a larger relative, if not absolute, part in the new issue market. Before 1914 some 90 per cent. of all issues, other than issues to shareholders, were made by prospectus or offer for sale, and only about 10 per cent. by placing. By 1938 the proportion of Stock Exchange placings had risen to 50 per cent., and since the war it has risen to nearly 75 per cent. Since the average size of prospectus issues and offers for sale is a good deal larger than that of placings, the increase in terms of value is rather less marked, but even so the value of placings has recently been well over half the total of all issues other than to shareholders. The switch to placings would no doubt have been even more marked but for the Stock Exchange ruling that these must be confined to the smaller issues. It is probably largely as a result of this ruling that two large issues have recently been placed privately without application for a Stock Exchange quotation.

It is well known, and is confirmed by a study of lists of shareholders, that Stock Exchange placings are mainly taken up by large investors, principally institutions, and that only the fraction of the issue made available through the Stock

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[1] *Economist*, November 18th, 1950, p. 847.

Exchange is available for the personal investor. This system is convenient to both sides. The small number of investors with whom the issuing house or broker has to deal and the absence of sub-underwriting costs reduce the expenses of the issue, while the buying institutions have the opportunity of acquiring their securities in blocks of convenient size, usually of £5,000 or more. Blocks of this size of the securities of small companies, on which the yields are generally higher, could not easily be obtained by purchases on the Stock Exchange without disturbing the price. It is true that these blocks of securities of small companies are less marketable than securities of larger companies, but life insurance offices have little need to concern themselves with marketability so long as the yield of the securities they hold remains satisfactory.

Thus the increasing prevalence of Stock Exchange placings, together with the fact that these are largely taken up by institutions, indicates the increasingly important part played by institutions in providing a market for new issues. The importance of the part still played by the individual investor should not, however, be underestimated, for more than 40 per cent. of the value of all new issues consists of issues to shareholders only, of which a much larger proportion than of placings is probably taken up by individuals. At a guess I should put the proportion of total new issues still going to personal investors at not less than half.

We therefore find that, while the organisation of the new issue market for industrial securities has been improved out of all knowledge during the past generation, it is now catering for a demand which is both far below that which it is organised to supply and is also largely of a type which needs the protection of the new safeguards less than did its original customers. How far is this condition desirable, and how long is it likely to continue ?

To deal with the less important development first, I do not consider the increased relative importance of institutional investment as on the whole undesirable. It is true that the securities taken up by institutions through Stock Exchange placings seem to consist largely of debentures and preference shares. But the reason for this seems to be at least as much the unwillingness of existing owners of small companies to part with control as any reluctance on the part of the institutions to supply risk capital. The recent accounts of many life insurance companies, for instance, show no evidence of any reluctance to increase their holdings of ordinary shares ; though since these are presumably largely obtained by purchases in the market they probably consist mainly of the shares of larger companies, which alone can normally be obtained through the market in blocks of adequate size without disturbing prices. From the personal investor's point of view, the important part played by institutions, with their staffs of experts, provides additional safeguards, not only for the investor who entrusts his savings to their care, but also for the private investor who finds himself a fellow shareholder or debenture-holder with them ; for the institutions are far better equipped than he is to stand up against boards of directors both for their own rights and for his.

The fall in the total business of the new issue market, on the other hand is, I think, a pity. The great danger to our present national economy is rigidity—a tendency to keep on running in its accustomed ruts instead of breaking away and exploring new paths. In the past the greatest new developments have frequently come from the growth of new firms and new industries, often to the great discomfort of those already established. But for new firms and new industries to grow they must have access to capital, and this is facilitated by the existence of a large and active market, where the newcomer may compete on equal terms with the old and well established. The possibilities for a new and efficient firm to obtain the capital it needed to enable it to grow were greatest when there were a large number of substantial private investors looking for investment opportunities and when a firm could plough back freely the exceptional profits its exceptional efficiency enabled it to make. To-day the position is very different from this. The place of the private saver has very largely been taken by the state, which is naturally prone to give priority for such capital as it can spare from housing or other social investment to basic industries, whether nationalised or not. The proportion of the national income saved in the form of business profits ploughed back may not be very different from what it has been in several previous periods ; but there is a world of difference between savings made out of lightly taxed profits earned in the face of strenuous competition and the same amount of savings made out of profits that have been easily earned but heavily taxed. In the first case only the efficient can make profits, but if they make them they keep them; in the second case profits depend more on being allowed a due share of materials and of the market than on any particular excellence of management, and such profits as are left after tax are shared much more equally between the more and the less efficient. Thus the exceptionally efficient firm is starved of the new capital which would enable it to realise its full potentialities, while the less efficient firm is able to continue to exist with every outward appearance of success.

It is difficult to be very optimistic about any substantial and continued expansion in the near future in the volume of business on the London new issue market. It is, of course, always possible for a temporary improvement, such as that which occurred in the autumn of 1950, to develop as the result either of an improvement in confidence—or a decrease in liquidity preference, if you prefer the current jargon—or of an influx of funds from abroad which is allowed to expand the volume of bank deposits. But neither of these developments—unless, indeed, they lead to a worsening of our balance of payments position—does anything in conditions of full employment to make more resources available on which to spend the proceeds of new issues. Their effects are in themselves purely inflationary, and they cannot continue for long without either intensifying the tendency towards a rise in domestic prices or checking the improvement in our balance of payments.

Until recently it appeared that it might be possible for the authorities to increase the rate of their purchases or repayments of long-term Government debt and so make more money available for institutions and persons to re-invest through the market. This hope was based partly on the gradual fall in war damage payments and other capital transfers and partly on the increased rate of saving by the social security funds. But now the news of the impending cessation of Marshall Aid coupled with the prospect of greatly expanded expenditure on armaments makes it likely that the Government will have less rather than more funds available for the repayment of debt, and that total investable funds in the capital market may therefore tend rather to diminish than to increase. If so, the Government will have to look to other means for balancing the national savings and investment budget without inflation. It seems likely that it will first look, as indeed it is at present looking, to a still further expansion of business savings. If by reason of a breakdown in wage restraint this policy should fail, there are only four other courses open to it if inflation is to be avoided—an increase in Government saving through higher taxes or reduced non-military expenditure ; an increase in personal saving, mainly in the middle- and lower-income groups, enforced by renewed controls on consumption ; a decrease in non-military investment by stricter controls on capital formation ; and a general discouragement of investment by a restriction of the quantity of money and a rise in rates of interest. Of these possible courses, the enforcement of more stringent controls on capital investment seems the likeliest ; and it is too much to expect that the brunt of them will fall on capital formation by public authorities or nationalised industries. This would mean that demand for new capital through the market would be reduced to match the reduced supply, and that inflation would be avoided at the expense of a still further fall in the business of the new issue market.

Only in the very long run is it possible to be even moderately optimistic about an expansion in the market's activity. While it is unlikely that net personal savings will expand spontaneously while taxation is as heavy as at present, and while it is also unlikely that any Government, of whatever political complexion, would bring about any large and rapid reduction in public expenditure and in taxation, it may perhaps be possible to hope that Government expenditure may some day begin to rise more slowly than the national income, so that the present immensely high ratio of taxation to income may begin to decline. If the benefits of tax reductions are distributed among all income groups, and still more if they are concentrated on those taxes which are at present paid mainly out of capital, we may perhaps see the beginning of a rise in gross saving and of a fall in capital consumption combining to produce an increase in net savings available for investment. If these modest hopes are justified, the next generation may perhaps see the institutions of the London capital market dealing with a volume of business more commensurate with the improvements which this generation has seen in its organisation and capacity.

The London School of Economics.

Distribution of Earned and Investment Incomes in the United Kingdom in 1937-38

By E. C. Rhodes

In the Inland Revenue Report for the year ended March 1940, Cmd. 6769, March 1946, tables are shown giving the classification of taxpayers for the year 1937–38 distinguishing Investment Income from Earned Income. These tables further distinguish the taxpayers into the categories Married, Single Male and Single Female. It is possible, from these tables, to obtain other tables showing the incomes distinguished according to whether they are wholly investment or wholly earned or mixed earned and investment incomes. For instance, in the original tables relating to married taxpayers there were 3,107,305 incomes in all. Of these 1,454,519 were described as investment incomes and 3,043,087 as earned incomes. If we suppose that the number of incomes which are wholly investment incomes is n_1, the number of wholly earned incomes is n_2, and the number of incomes of mixed source, partly earned and partly investment, is n_3, then we have

$$\begin{aligned} n_1 + n_2 + n_3 &= 3{,}107{,}305 \\ n_1 + n_3 &= 1{,}454{,}519 \\ n_2 + n_3 &= 3{,}043{,}087. \end{aligned}$$

It follows that $n_1 = 64{,}218$, $n_2 = 1{,}652{,}786$, $n_3 = 1{,}390{,}301$. As the original table classifies the incomes according to range, into 24 groups from £200, we can get the distribution of incomes, distinguishing wholly investment, wholly earned and mixed investment and earned.

We can also estimate the amounts of the incomes possessed by these various taxpayers in the different ranges of income and the different classes, as the original tables give us the amount of income distinguished according to source, investment or earned. This is done for each grade of income according to the method illustrated below. In the income range £200—£219 for married taxpayers, we are told that the number of cases of investment income was 124,372, and the amount of investment income was £3,482,000. The number of cases of earned income was 566,935 and the amount, £115,776,000, the total number of cases was 570,732, the total income being £119,258,000. We obtain from these figures this information :—

MARRIED TAXPAYERS, INCOME £200—£219

	Number	Amount (£000)		
		Investment	*Earned*	*Total*
Wholly investment..	3,797	793		793
Wholly earned	446,360		93,272	93,272
Mixed { Investment	120,575	2,689		25,193
Mixed { Earned			22,504	
TOTAL	570,732	3,482	115,776	119,258

From the fact that there are in all 570,732 incomes in this range totalling £119,258,000, we find the average income as £209·0, being nearly mid-way in the range £200 to £219. If we assume the same average for the 3,797 wholly investment incomes obtained by subtraction of 566,935 from 570,732, we find the amount of the income of these wholly investment incomes as £793,000. The amount of investment income possessed by the mixed income taxpayers is £2,689,000 obtained by subtracting 793 from 3,482. Assuming again the same average income, £209·0, for the wholly earned incomes, of which there are 446,360, obtained by subtracting 124,372 from 570,732, we get the amount of wholly earned income as £93,272,000. When this is subtracted from £115,776,000 we get £22,504,000, the amount of earned income possessed by the 120,575 mixed income taxpayers. We then see that the total income of this mixed income group is £25,193,000, the average income being again £209·0.

It was thought preferable to estimate the amounts of income in the various categories and for the different ranges of income in this comparatively simple manner, i.e., assuming the same average income, rather than to attempt some more elaborate method. We did, in fact, in some cases, obtain these estimates by assuming different Pareto curves in the various ranges for the different kinds of income, but the changes introduced were not relatively very large, and it was felt that possibly the assumptions made by using this method were no more justifiable than the assumptions made when using the simpler method.

The procedure outlined above was used on the original data to give detailed distributions for the three classes of taxpayers, married, single males and single females and for the three kinds of income, wholly investment, wholly earned and mixed investment and earned. We have the following overall results :—

TABLE I

NUMBER AND AMOUNTS OF DIFFERENT KINDS OF INCOME

	Number	Income (£000) *Earned*	Income (£000) *Investment*	*Total*
Married :				
Wholly earned	1,652,786	478,336		478,336
Wholly investment.. ..	64,218		54,924	54,924
Mixed : Earned	1,390,301	630,794		938,038
Investment ..			307,244	
Totals	3,107,305	1,109,130	362,168	1,471,298
Single Males :				
Wholly earned	301,627	83,834		83,834
Wholly investment.. ..	37,727		29,079	29,079
Mixed : Earned	225,550	91,819		157,277
Investment ..			65,458	
Totals	564,904	175,653	94,537	270,190
Single Females :				
Wholly earned	84,276	23,058		23,058
Wholly Investment ..	189,529		134,198	134,198
Mixed : Earned	166,924	39,578		90,776
Investment ..			51,198	
Totals	440,729	62,636	185,396	248,032
All Incomes :				
Wholly Earned	2,038,689	585,228		585,228
Wholly Investment ..	291,474		218,201	218,201
Mixed : Earned	1,782,775	762,191		1,186,091
Investment ..			423,900	
Totals	4,112,938	1,347,419	642,101	1,989,520

In all there were 4,112,938 incomes over £200, of these 3,107,305 were incomes of married persons, 564,904 were incomes of single males and 440,729 incomes of single females. The total amount of income was £1,989,520,000, of this £1,347,419,000 was earned and £642,101,000 investment income. The table below shows percentages of the various totals in the groups, married, single males, single females. Of the 3,107,305 married taxpayers 53·2 per cent. had wholly earned incomes accounting for 32·5 per cent. of the total income of this group of taxpayers, 44·7 had mixed incomes, with 63·8 per cent. of the total income; about two-thirds of this income was earned, the other third being investment income. Of the 564,904 single males, 53·4 per cent. had incomes which were wholly earned, the amount of this income being 31 per cent. of the total of the group. 6·7 per cent. of these males had wholly investment incomes accounting for just over 10 per cent. of the total income and 40 per cent. had incomes derived partly from earnings and partly from investment, the income being 58·2 per cent. of the total, of which about 60 per cent. was earned and 40 per cent. investment income. Of the 440,729 single females, 19·1 per cent. had wholly earned incomes, accounting for 9·3 per cent. of the total income of the group, 43 per cent. had wholly investment incomes accounting for 54·1 per cent. of the total, and 37·9 per cent. had mixed incomes with 36·6 per cent. of the total income of the group, more than half of this being investment income.

PERCENTAGES

	Married		*Single Males*		*Single Females*	
	Number	*Amount*	*Number*	*Amount*	*Number*	*Amount*
Wholly Earned ..	53·2	32·5	53·4	31·0	19·1	9·3
Wholly Investment ..	2·1	3·7	6·7	10·8	43·0	54·1
Mixed	44·7	(E) 42·9 (I) 20·9	39·9	(E) 34·0 (I) 24·2	37·9	(E) 16·0 (I) 20·6
TOTALS	100	100	100	100	100	100

(E) = Earned. (I) = Investment.

The most important feature of this table is the high percentage figure for single females with investment incomes. This is accompanied by a low figure for wholly earned incomes. We may remind ourselves at this stage of the composition of the three classes of taxpayers. A fuller description of " single " is " single and widowed ". The income of married taxpayers may be income of husband and wife included as one income for tax purposes. The original source of the investment income is, of course, not known to us. In the single female class, there may be widows enjoying an investment income derived from bequests from deceased husbands; there may be single women living on incomes which have been inherited from parents or other relatives.

Of the 4,112,938 incomes greater than £200 in 1937–38, 291,474 are incomes from investment only, i.e., 7·1 per cent. These investment incomes aggregate £218,201,000 of the total £1,989,520,000, 10·9 per cent. 189,529 incomes of the 291,474 investment incomes are the incomes of single female taxpayers, about 65 per cent. In all, these incomes account for £134,201,000 of the £218,201,000 wholly investment income, i.e., 61·5 per cent.

The average income for the various classes and kinds of income are shown in the next table.

TABLE II

AVERAGE INCOMES (£)

	Married	*Single Males*	*Single Females*
Wholly Earned	289	278	274
Wholly Investment	855	771	708
Mixed: Earned	454	407	237
Investment..	221	290	307
Mixed	675	697	544

It must be remembered that we are concerned with average incomes of taxpayers with more than £200 income. The averages of the wholly earned income classes do not differ very greatly. The highest figure is that for the married, the lowest that for single females, but the average for the single males is only £4 greater than that for single females. For wholly investment incomes the differences are greater absolutely and relatively. The highest figure again is that for the married class and the lowest for single females. The difference between the averages for married and single males is £84, that between single males and single females is £63. The averages for the mixed earned and investment incomes are less than for wholly investment incomes for each class. For married taxpayers the average for the wholly investment incomes is £180 more than for the mixed incomes. For single males the difference is £74, for single females £164. For the married taxpayers the average earned income of those with mixed incomes is £454, for the single males this average is £407 and for single females, £237. The average investment part of these incomes is highest for single females and lowest for the married, reversing the order which has been noticed previously. The single male average investment income of the mixed income class is £69 greater than that for the married, and the single female average investment income is £17 greater than that for single males. Of the combined average mixed incomes, the single male figure is the highest, £22 more than that for the married and £153 more than that for single females.

In a full discussion of the differences between average incomes of different classes and of various kinds we should like to consider the influence of age, but with the present data we cannot do this. In particular one would like to see the age distributions of the various classes of taxpayer whose incomes are wholly earned and wholly invested.

So far we have been considering the data without reference to income grades. The distributions in full are shown in the Appendix Tables A, B and C. A summary table, with broad income grades £200—£499, £500—£999, £1,000—£,1,999 and £2,000 and over is given below, Table III. In Table IV, there are shown, for each class of taxpayer and for each income grade, the proportions of incomes wholly earned, wholly investment and mixed earned and investment. Of the whole 4,112,938 incomes, 3,393,531, about 82·5 per cent., are incomes between £200 and £500. Of these, 2,587,169 are incomes of married taxpayers. Only 103,306 of the total, about 2·5 per cent., are incomes more than £2,000 and of these 72,479 are those of married taxpayers. In Table IV we see the differences in the various proportions. Of the married taxpayers in the range £200—£499 only 1·4 per cent. have wholly investment incomes, more than 60 per cent. have wholly earned incomes. 38 per cent. have mixed incomes accounting for about 41 per cent. of the total income. Nearly 90 per cent. of this mixed income is earned. In this group, of the total income, about 7 per cent. is investment income. At the other end of the income scale, for the group with incomes £2,000 and over, only 1·7 per cent. are wholly earned, 7 per cent. only are investment

TABLE III

1937–38. TAXPAYERS, DISTINGUISHING CIVIL CONDITION, EARNED AND INVESTMENT INCOME AND INCOME GRADES

	Income Grades									
	£200—£499		£500—£999		£1,000—£1,999		£2,000 *and over*		*All Incomes*	
Income	*Number*	*Income* (£000)	*Number*	*Income* (£000)	*Number*	*Income* (£000)	*Number*	*Income* (£000)	*Number*	*Income* (£000)
MARRIED :										
Wholly Earned	1,568,143	410,902	71,220	46,110	12,168	16,084	1,255	5,240	1,652,786	478,336
Wholly Investment	35,004	11,114	15,822	10,963	8,303	11,424	5,089	21,423	64,218	54,924
Mixed : Earned	984,022	257,973	244,569	129,347	95,575	89,783	66,135	153,691	1,390,301	630,794
Investment		39,993		36,029		41,422		189,800		307,244
TOTALS	2,587,169	719,982	331,611	222,449	116,046	158,713	72,479	370,154	3,107,305	1,471,298
SINGLE MALES :										
Wholly Earned	288,638	73,148	10,649	6,894	2,040	2,702	300	1,090	301,627	83,834
Wholly Investment	22,862	7,047	8,219	5,655	4,078	5,588	2,568	10,789	37,727	29,079
Mixed : Earned	159,743	38,543	38,404	17,865	15,493	12,439	11,910	22,972	225,550	91,819
Investment		9,062		8,266		8,842		39,288		65,458
TOTALS	471,243	127,800	57,272	38,680	21,611	29,571	14,778	74,139	564,904	270,190
SINGLE FEMALES :										
Wholly Earned	82,322	21,601	1,712	1,089	215	282	27	86	84,276	23,058
Wholly Investment	116,289	36,237	43,520	29,950	19,146	26,168	10,574	41,843	189,529	134,198
Mixed : Earned	136,508	29,119	18,619	5,731	6,349	2,488	5,448	2,240	166,924	39,578
Investment		11,478		6,757		6,237		26,726		51,198
TOTALS	335,119	98,435	63,851	43,527	25,710	35,175	16,049	70,895	440,729	248,032
ALL INCOMES :										
Wholly Earned	1,939,103	505,651	83,581	54,093	14,423	19,068	1,582	6,416	2,038,689	585,228
Wholly Investment	174,155	54,398	67,561	46,568	31,527	43,180	18,231	74,055	291,474	218,201
Mixed : Earned	1,280,273	325,635	301,592	152,943	117,417	104,710	83,493	178,903	1,782,775	762,191
Investment		60,533		51,052		56,501		255,814		423,900
TOTALS	3,393,531	946,217	452,734	304,656	163,367	223,459	103,306	515,188	4,112,938	1,989,520

TABLE IV

1937–38. TAXPAYERS, DISTINGUISHING CIVIL CONDITION, EARNED AND INVESTMENT INCOME AND INCOME GRADES
(PERCENTAGES)

	Income Grades									
	£200—£499		£500—£999		£1,000—£1,999		£2,000 *and over*		*All Incomes*	
Income	*Number*	*Income*	*Number*	*Income*	*Number*	*Income*	*Number*	*Income*	*Number*	*Income*
MARRIED :										
Wholly Earned	60·6	57·1	21·5	20·7	10·5	10·1	1·7	1·4	53·2	32·5
Wholly Investment	1·4	1·5	4·8	4·9	7·2	7·2	7·0	5·8	2·1	3·7
Mixed : Earned	38·0	35·8	73·7	58·2	82·4	56·6	91·3	41·5	44·7	42·9
Investment.. ..		5·6		16·2		26·1		51·3		20·9
TOTALS	100	100	100	100	100	100	100	100	100	100
SINGLE MALES :										
Wholly Earned	61·2	57·2	18·6	17·8	9·4	9·1	2·0	1·5	53·4	31·0
Wholly Investment	4·9	5·5	14·3	14·6	18·9	18·9	17·4	14·5	6·7	10·8
Mixed : Earned	33·9	30·2	67·1	46·2	71·7	42·1	80·6	31·0	39·9	34·0
Investment.. ..		7·1		21·4		29·9		53·0		24·2
TOTALS	100	100	100	100	100	100	100	100	100	100
SINGLE FEMALES :										
Wholly Earned	24·6	21·9	2·7	2·5	0·8	0·8	0·2	0·1	19·1	9·3
Wholly Investment	34·7	36·8	68·2	68·8	74·5	74·4	65·9	59·0	43·0	54·1
Mixed : Earned	40·7	29·6	29·2	13·2	24·7	7·1	33·9	3·2	37·9	16·0
Investment.. ..		11·7		15·5		17·7		37·7		20·6
TOTALS	100	100	100	100	100	100	100	100	100	100
ALL INCOMES :										
Wholly Earned	57·1	53·4	18·5	17·8	8·8	8·5	1·5	1·2	49·6	29·4
Wholly Investment	5·1	5·8	14·9	15·3	19·3	19·3	17·6	14·4	7·1	11·0
Mixed : Earned	37·7	34·4	66·6	50·2	71·9	46·9	80·8	34·7	43·3	38·3
Investment.. ..		6·4		16·8		25·3		49·7		21·3
TOTALS	100	100	100	100	100	100	100	100	100	100

incomes, the rest are of mixed source, accounting for nearly 93 per cent. of the total income. Of the mixed incomes in this group more than half is investment income. For single males, 61 per cent. are wholly earned incomes, nearly 5 per cent. wholly investment incomes, in the group with incomes between £200 and £500. Nearly 13 per cent. of the total income of those in this group is from investment. For single males with incomes £2,000 and over, only 2 per cent. are wholly earned incomes, 17 per cent. are wholly investment incomes. Of the total income, 67·5 per cent. is investment income. For single females the proportions are substantially different. In the range of incomes, £200—£499, nearly 25 per cent. are wholly earned, accounting for 22 per cent. of the total income, nearly 35 per cent. are investment incomes, the remainder, nearly 41 per cent., are mixed earned and investment. Of the total income of this group, 48·5 per cent. is investment income. In the £2,000 and over group, nearly 66 per cent. are wholly investment incomes, and the rest are practically all of mixed source. Of the total income of this group nearly 97 per cent. is investment income.

The aggregate income of all the 4,112,938 taxpayers is £1,989,520,000. Of this £642,101,000 is investment income, £218,201,000 of it being wholly investment income. Thus 32·3 per cent. of the total income is investment income. Of the £642,101,000 investment income, £329,869,000 or just over half belongs to taxpayers with £2,000 and more income. £114,931,000, or about 18 per cent., belongs to taxpayers with incomes between £200 and £500. Of the £218,201,000 wholly investment income, £54,398,000 or about 25 per cent. belongs to taxpayers in the range of incomes £200—£499.

It is interesting to note, when looking at tables A, B and C, that even in the lowest income range £200—£219, there are taxpayers with wholly investment incomes. Of the married, 3,797 out of 570,732 are wholly investment incomes. Of the total income £119,258,000, of the incomes in this range, £3,482,000, about 3 per cent., is investment income, and of this about one quarter is wholly investment income. For single females in this low income range, £200—£219, 14,443 out of the 55,141 total incomes, i.e., about 26 per cent., are wholly investment incomes. The total amount of investment income in this range is £4,017,000, i.e., about 35 per cent. of the total income, £11,513,000.

The percentages of the total income for each income grade for investment income and wholly investment income are shown in Table V for each class of taxpayer. The ratio of investment income to total income rises with income for each class. For the married the rise is from 3 per cent. for the lowest income grade to 80 per cent. for taxpayers with £50,000 or more. About half the total income is investment income for those with incomes between £3,000 and £4,000. For single male taxpayers, the proportions range from 5 per cent. investment income for the lowest income range, between £200 and £220, to about 80 per cent. for the highest income range. About half the total income is investment income for incomes about £1,500. The pattern is different for single females. At the lowest income level, as has been pointed out above, 35 per cent. of the total income is investment income, about half the income is investment income at

TABLE V

PERCENTAGES OF TOTAL INCOME WHICH IS INVESTMENT INCOME AND WHOLLY INVESTMENT INCOME IN THE VARIOUS INCOME GRADES

	Married		*Single Males*		*Single Females*	
Income Grades	*Investment Income*	*Wholly Investment Income*	*Investment Income*	*Wholly Investment Income*	*Investment Income*	*Wholly Investment Income*
£						
200–	2·9	0·7	4·9	2·3	34·9	26·2
220–	4·2	0·9	7·3	3·2	40·1	30·0
250–	5·9	1·2	11·2	5·0	39·2	29·4
300–	9·5	2·1	18·2	8·0	52·3	39·4
400–	13·7	3·2	25·7	10·6	70·1	54·8
500–	16·9	4·0	30·6	13·0	79·9	64·5
600–	20·2	4·7	35·3	14·4	83·1	67·5
700–	22·7	5·3	37·9	14·9	85·9	70·7
800–	24·9	5·8	41·9	15·7	87·9	71·9
900–	27·2	6·3	42·7	17·4	89·5	73·9
1,000–	31·3	7·0	46·9	18·8	91·4	74·8
1,500–	36·5	7·5	51·8	19·1	93·2	73·8
2,000–	42·7	7·1	57·0	18·5	94·6	72·2
2,500–	46·7	8·0	60·7	19·1	95·3	68·8
3,000–	50·4	8·0	62·9	17·5	96·1	67·6
4,000–	51·8	7·2	65·6	20·3	96·8	63·5
5,000–	55·5	7·0	66·7	14·5	97·1	58·3
6,000–	57·2	5·7	70·6	17·1	97·4	59·6
8,000–	58·9	4·6	69·1	15·2	97·8	47·7
10,000–	63·6	5·3	71·4	10·1	98·3	46·9
15,000–	65·7	3·7	72·7	10·3	98·9	49·4
20,000–	67·0	3·0	75·2	9·9	99·0	39·6
30,000–	66·4	2·6	78·1	6·9	97·2	22·0
50,000–	80·1	1·6	80·4	1·9	98·7	35·9

£300, and at the high income levels the proportion is 99 per cent.

When we look at the figures of the ratio of wholly investment income to total income for the various income grades, we see another pattern. For the married, this proportion is never more than 8 per cent. at about £3,000 per annum. The percentages rise from less than 1 for the low incomes to this maximum and then decline. For single males the percentages rise from about 2 at the low income level to about 20, the maximum being somewhere about £3,000, and then decline to about 2 at the high income level. We have very different figures for single females. At the low income level about one quarter of the total income is investment income, the maximum figure is about 75 per cent. for incomes between £1,000 and £1,500 and the percentages decline as we proceed higher in the scale of income.

It is possible to make a comparison in time, for all taxpayers with more than £2,000 income, of the proportions of investment income for certain income grades. In the Inland Revenue Report for the year ended March 1948 (Cmd. 7738, July 1949) we are given, for 1946–47, tables showing the total incomes for the surtax payers in various grades, and the earned income parts of these totals. From these figures we can compute the percentages which the investment income bears to total income. For our data for 1937–38 similar figures can be computed, taking all taxpayers together, married and single. Table VI shows the comparable figures.

TABLE VI

PERCENTAGES SHOWING THE RATIO OF INVESTMENT INCOME TO TOTAL INCOME

Income Grades	1937–38	*Income Grades*	1946–47
£		£	
2,000–	53·6	2,000–	35·3
2,500–	56·4	2,500–	37·3
3,000–	59·5	3,000–	40·4
4,000–	61·5	4,000–	45·1
5,000–	62·8	5,000–	48·6
6,000–	64·9	6,000–	51·7
8,000–	65·4	8,000–	55·1
10,000–	68·4	10,000–	56·7
15,000–	70·2	12,000–	60·4
20,000–	71·3	15,000–	61·6
30,000–	71·5	20,000–	70·7
50,000–	81·8		

The income grades for the two sets of data are not identical, but the figures are sufficiently comparable for our purposes. For all incomes, in 1937–38, between £2,000 and £2,500 nearly 54 per cent. of the income was investment income. For the same income grade in 1946–47 the corresponding figure was 35 per cent. The differences between these percentages are 18 and 19 for incomes at the £2,000 and £3,000 level. The differences become less with increasing income; at the £8,000 and £10,000 level the difference is about 11 per cent.; at the £20,000 level the difference is much less. If we were attempting to make a strict comparison we should perhaps compare £2,000 in 1937–38 with a higher income in 1946–47. But even though we compared the £2,000 level in 1937–38 with £2,500 in 1946–47, the change in percentage investment income is considerable between the two periods. As the proportions of investment income to total income for the different income grades were substantially different for the various classes of taxpayers, married and single, in 1937–38, it is probable that there would be differences also in 1946–47. Part of the difference which we have noted for the surtax payers may be due to a change in the relative numbers of married taxpayers, single males and single females, between the two periods in the various income grades. The greater part of the change is probably due to the increased importance of the earned income part of the total income. But it would be interesting to know if, for instance, the proportions of investment income to total income for single females changed less from 1937–38 to 1946–47 than for single males or married.

It is interesting to compare the various classes and kinds of income from the point of view of variation. When we look at Tables A, B and C we note, for instance, that of the 1,652,786 married taxpayers with wholly earned incomes, 446,360 or 27 per cent. have incomes between £200 and £220, while of the 64,218 married taxpayers with wholly investment incomes 3,797 or 5·9 per cent. are in this income grade. There is more concentration or less variability for the wholly earned income group than for the wholly investment income group. We can best indicate the differences by computing a measure of relative variability such as the relative mean difference. The mean difference is the average of all the positive differences between all the incomes in a group. The relative mean difference is obtained by dividing this figure by the average. Table VII shows the results of these computations.

The most striking difference between these figures is that between wholly earned income groups and the others. The most closely knit group is that of single females with wholly earned incomes. Altogether there are 84,276 incomes of this kind (see table III) and of these 82,322 are incomes between £200 and £500, i.e., about 97·7 per cent. For single males, there are 301,627 wholly earned incomes, and of these 288,638, i.e., 95·8, are incomes between £200 and £500. In the case of married taxpayers 94·8 per cent. of those with wholly earned incomes have incomes between £200 and £500. On the other hand, for the wholly investment incomes, in the single female class there are 189,529, with 116,289 or 61·5 per cent. in the £200—£499 grade. Percentages of this size are also obtainable from Table III for the other classes. The relative variation for single females is least for each kind of income. The differences between the various figures for wholly investment incomes and for mixed earned and investment incomes are not very great. For the whole group taking all taxpayers together and disregarding the kind of income, the relative mean difference is 0·90.

TABLE VII

RELATIVE MEAN DIFFERENCES

Income	*Class of Taxpayer*			*All Taxpayers*
	Married	*Single Male*	*Single Female*	
Wholly Earned	0·41	0·37	0·29	0·90
Wholly Investment ..	1·03	1·03	0·97	
Mixed	1·04	1·08	0·95	

TABLE VIII

AVERAGE INCOMES AND MEAN DIFFERENCES (£)

Kind of Income	*Married*		*Single Males*		*Single Females*	
	Average	*Mean Difference*	*Average*	*Mean Difference*	*Average*	*Mean Difference*
Wholly Earned.. ..	289	119	278	101	274	79
Wholly Investment ..	855	884	771	795	708	685
Mixed	675	704	697	754	544	515

The absolute mean differences for the various groups are shown in Table VIII together with the averages previously shown in Table II.

In this table of mean differences, before reduction to standard by dividing by the averages, we see more strikingly the differences between the class of taxpayer and the kind of income. The variation in the groups of taxpayers with wholly investment income is enormous compared with that for the wholly earned groups. For single females, there are many taxpayers with high wholly investment incomes and comparatively few with high wholly earned incomes. The mean differences for single females are less than those for single males for all kinds of income. The mean differences for single males are less than those for married except for mixed incomes. The mean differences for mixed incomes are less than those for wholly investment incomes, for each class of taxpayer. The averages here are also less.

When we are comparing the mean differences of two income distributions where the incomes are those of a composite group of males and females, married and single, and where the income is both earned and investment income or a combination of the two, we must remember that any differences between these measures of variation may be partly attributed to differences in the composition of the two groups in regard to the factors enumerated here, quite apart from any differences due to other factors which have not been taken into account, such as age or lapse of time. In the United Kingdom, since the war, the composition of the population of income receivers has probably changed materially. The increase in the proportion of female workers will have altered the relative numbers of persons in the married, single male and single female groups. The relationship between investment income and earned income will have changed. Some of the lowering of the relative mean difference may be due to these factors; how much it is impossible to tell.

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TABLE A

1937–38. CLASSIFICATION OF MARRIED TAXPAYERS, DISTINGUISHING INVESTMENT INCOME FROM EARNED INCOME

Total Income	*Wholly Earned*		*Wholly Investment*		*Mixed Earned and Investment*			*Total Income*	
	Number	*Income* (£000)	*Number*	*Income* (£000)	*Number*	*Income* (£000) *Earned*	*Income* (£000) *Investment*	*Number*	*Income* (£000)
£									
200— 219	446,360	93,272	3,797	793	120,575	22,504	2,689	570,732	119,258
220— 249	432,014	100,751	5,350	1,248	185,942	38,476	4,888	623,306	145,363
250— 299	370,561	100,339	7,257	1,965	243,754	58,122	7,882	621,572	168,308
300— 399	242,885	82,722	11,058	3,766	280,787	82,161	13,468	534,730	182,117
400— 499	76,323	33,818	7,542	3,342	152,964	56,710	11,066	236,829	104,936
500— 599	33,855	18,419	5,214	2,837	92,553	41,082	9,271	131,622	71,609
600— 699	16,669	10,755	3,713	2,396	58,826	30,017	7,939	79,208	51,107
700— 799	10,072	7,513	2,860	2,133	40,644	23,388	6,932	53,576	39,966
800— 899	6,339	5,365	2,228	1,886	29,950	19,129	6,221	38,517	32,601
900— 999	4,285	4,058	1,807	1,711	22,596	15,731	5,666	28,688	27,166
1,000— 1,499	9,463	11,430	5,582	6,742	64,821	54,882	23,410	79,866	96,464
1,500— 1,999	2,705	4,654	2,721	4,682	30,754	34,901	18,012	36,180	62,249
2,000— 2,499	372	830	1,379	3,076	17,553	23,831	15,323	19,304	43,060
2,500— 2,999	273	746	994	2,716	11,149	17,341	13,118	12,416	33,921
3,000— 3,999	293	1,007	1,140	3,917	12,759	23,193	20,641	14,192	48,758
4,000— 4,999	101	450	564	2,513	7,157	15,938	15,947	7,822	34,848
5,000— 5,999	61	333	341	1,864	4,479	11,530	12,950	4,881	26,677
6,000— 7,999	64	440	300	2,062	4,939	15,156	18,796	5,303	36,454
8,000— 9,999	23	204	124	1,102	2,567	9,717	13,102	2,714	24,125
10,000—14,999	49	591	162	1,953	2,873	12,964	21,680	3,084	37,188
15,000—19,999	7	120	44	754	1,137	6,871	12,621	1,188	20,366
20,000—29,999	7	167	25	598	800	6,402	12,723	832	19,890
30,000—49,999	2	74	11	405	416	5,238	10,082	429	15,799
50,000—and over	3	278	5	463	306	5,510	22,817	314	29,068
TOTALS	1,652,786	478,336	64,218	54,924	1,390,301	630,794	307,244	3,107,305	1,471,298

TABLE B

1937–38. CLASSIFICATION OF SINGLE TAXPAYERS (MALE), DISTINGUISHING INVESTMENT INCOME FROM EARNED INCOME

Total Income	*Wholly Earned*		*Wholly Investment*		*Mixed Earned and Investment*			*Total Income*	
	Number	Income (£000)	Number	Income (£000)	Number	Income (£000) Earned	Income (£000) Investment	Number	Income (£000)
£									
200— 219	102,221	21,311	3,032	632	24,655	4,452	688	129,908	27,083
220— 249	79,772	18,579	3,685	858	30,789	6,076	1,095	114,246	26,608
250— 299	59,589	16,121	5,142	1,391	37,507	8,428	1,719	102,238	27,659
300— 399	36,222	12,338	6,922	2,358	43,361	11,761	3,009	86,505	29,466
400— 499	10,834	4,799	4,081	1,808	23,431	7,826	2,551	38,346	16,984
500— 599	5,108	2,775	2,853	1,550	14,030	5,519	2,101	21,991	11,945
600— 699	2,427	1,566	1,957	1,263	9,253	4,127	1,845	13,637	8,801
700— 799	1,487	1,111	1,380	1,031	6,422	3,201	1,598	9,289	6,941
800— 899	980	829	1,102	933	4,955	2,744	1,450	7,037	5,956
900— 999	647	613	927	878	3,744	2,274	1,272	5,318	5,037
1,000— 1,499	1,573	1,900	2,781	3,359	10,460	7,607	5,026	14,814	17,892
1,500— 1,999	467	802	1,297	2,229	5,033	4,832	3,816	6,797	11,679
2,000— 2,499	126	284	792	1,783	3,365	3,862	3,711	4,283	9,640
2,500— 2,999	54	147	471	1,285	1,946	2,501	2,811	2,471	6,744
3,000— 3,999	53	183	491	1,692	1,264	3,409	4,392	2,808	9,675
4,000— 4,999	28	125	307	1,370	1,179	2,199	3,062	1,514	6,756
5,000— 5,999	17	93	135	736	778	1,594	2,649	930	5,072
6,000— 7,999	9	62	173	1,194	829	1,991	3,733	1,011	6,980
8,000— 9,999	3	27	85	759	471	1,515	2,691	559	4,992
10,000—14,999	6	73	65	788	573	2,163	4,784	644	7,808
15,000—19,999	2	34	22	377	189	961	2,279	213	3,651
20,000—29,999	1	24	19	456	172	1,120	3,012	192	4,612
30,000—49,999	1	38	7	264	93	794	2,709	101	3,805
50,000 and over	—	—	1	85	51	863	3,456	52	4,404
TOTALS	301,627	83,834	37,727	29,079	225,550	91,819	65,458	564,904	270,190

TABLE C

1937–38. CLASSIFICATION OF SINGLE TAXPAYERS (FEMALE), DISTINGUISHING INVESTMENT INCOME FROM EARNED INCOME

Total Income	*Wholly Earned*		*Wholly Investment*		*Mixed Earned and Investment*			*Total Income*	
	Number	Income (£000)	Number	Income (£000)	Number	Income (£000) Earned	Income (£000) Investment	Number	Income (£000)
£									
200— 219	21,823	4,557	14,443	3,015	18,875	2,939	1,002	55,141	11,513
220— 249	19,898	4,658	18,876	4,419	24,120	4,169	1,480	62,894	14,726
250— 299	24,845	6,778	25,788	7,035	37,059	7,772	2,339	87,692	23,924
300— 399	13,495	4,606	35,118	11,988	40,510	9,911	3,917	89,123	30,422
400— 499	2,261	1,002	22,064	9,780	15,944	4,328	2,740	40,269	17,850
500— 599	881	480	14,970	8,159	7,351	2,061	1,946	23,202	12,646
600— 699	407	263	10,420	6,736	4,603	1,421	1,555	15,430	9,975
700— 799	218	163	7,738	5,781	2,989	987	1,246	10,945	8,177
800— 899	127	108	5,685	4,814	2,094	701	1,072	7,906	6,695
900— 999	79	75	4,707	4,460	1,582	561	938	6,368	6,034
1,000— 1,499	172	208	13,283	16,071	4,313	1,630	3,588	17,768	21,497
1,500— 1,999	43	74	5,863	10,097	2,036	858	2,649	7,942	13,678
2,000— 2,499	10	22	3,447	7,685	1,320	550	2,393	4,777	10,650
2,500— 2,999	7	19	2,023	5,526	910	360	2,126	2,940	8,031
3,000— 3,999	2	7	2,238	7,670	1,062	432	3,207	3,302	11,316
4,000— 4,999	5	22	1,087	4,835	621	225	2,538	1,713	7,620
5,000— 5,999	3	16	542	2,952	384	133	1,959	929	5,060
6,000— 7,999	—	—	637	4,390	432	190	2,787	1,069	7,367
8,000— 9,999	—	—	229	2,039	251	92	2,143	480	4,274
10,000—14,999	—	—	219	2,628	248	94	2,883	467	5,605
15,000—19,999	—	—	83	1,418	85	31	1,421	168	2,870
20,000—29,999	—	—	42	993	64	26	1,488	106	2,507
30,000—49,999	—	—	13	479	46	61	1,633	59	2,173
50,000 and over	—	—	14	1,228	25	46	2,148	39	3,422
TOTALS	84,276	23,058	189,529	134,198	166,924	39,578	51,198	440,729	248,032

The Authorship of Sir Dudley North's *Discourses on Trade*

By William Letwin

Sir Dudley North's *Discourses on Trade*, published in 1691, have been lauded as the first great exposition of free-trade doctrines. Economists have extolled Sir Dudley for his profound understanding and precise logic, and have acclaimed him a great, if not the greatest, predecessor of Adam Smith. The tradition which assigns him such a high place, like many other traditions of interpretation, combines with its accumulated insight into the subject a highly developed body of myth.

The earliest printed study of Sir Dudley North is Roger North's biography. This work appeared in London as part of a group published in two quarto volumes: the first, *The Life of the Rt. Hon. Francis North, Baron Guilford*, in 1742, and the second, *Lives of the Hon. Sir Dudley North . . . and the Hon. and Rev. Dr. John North*, in 1744. Its author as well as its subjects were sons of Dudley, fourth Baron North, a Cavalier country gentleman, whose small claims to historical prominence rest on a few devotional and technical pamphlets, and on the eminence of his family.[1]

Of this distinguished family, the sons of the fourth Baron were undoubtedly the most eminent generation. The eldest son, Charles (1630–1690), is an historical nonentity. He lived a retired life, and because of the distance he maintained between himself and his biographer brother, Roger, little at all is known of him. The next brother in age was Francis

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[1] The founder of that family was a Tudor courtier, created first Baron North by Queen Mary. His elder son followed the father's profession in the court of Elizabeth; the younger son, Sir Thomas, translated Plutarch, thus founding the family's literary pretensions. The second Baron was succeeded by a grandson, whose brother, Captain Roger North (1580–1652), was a colleague of Sir Walter Ralcigh, and described by Aubrey (*Brief Lives*, London: Secker and Warburg, 1950, p. 258) as a great explorer and a "most accomplished Gentleman". Dudley, third Baron North, was a courtier to James I, who at the accession of Charles I retreated to the country to nurse his fortunes and practise a life of culture and refinement. He lived to crotchety old age, and surrendered the peerage only when his son was already sixty-six. This elderly son, the fourth Baron, was the father of the subjects of the *Lives*. The family distinction which those brothers magnified, was further enlarged by their descendants, William, Lord North and Gray, one of Marlborough's generals, and by Frederick North, second Earl of Guilford (1732–1792), George III's Prime Minister.

(1637–1685), who was trained for the bar in the Middle Temple. Making himself useful to Attorney General Palmer and the King, he rapidly rose in his profession. He became Solicitor General in 1671, Attorney General soon afterwards, by 1675 was Lord Chief Justice of the Common Pleas, and in 1682, at the age of 45, was appointed Lord Keeper of the Great Seal, the highest law office in the realm. Although completely devoted to the Court, and consequently castigated by Macaulay as a prime mover in the Tory reaction, he was a brilliant and honest judge.

The next brother was Sir Dudley (1641–1691), the economist. Like Francis and John, he was sent to school at Bury St. Edmunds; unlike them he hated it and did badly there. At an early age therefore he was apprenticed to a merchant in the Levant trade. Before reaching twenty, he was sent to Smyrna to act as the merchant's factor. There he spent several unrewarding years, after which he returned to England to break off relations with his principal. Having accumulated a small capital and secured some orders, he re-embarked for Turkey in about 1662, spent the next eighteen years mainly in Constantinople, and in time became perhaps the richest and most respected member of the Turkey Company. In 1680 he returned to England a wealthy man, still in his prime, but on the whole quite out of touch with English culture and affairs. At the urging of his brother Francis, he let himself be used in one of Charles II's many manœuvres to break the Whig opposition by infiltrating the government of London, and was illegally appointed sheriff. After a stormy year in office, Dudley was knighted and given a post as Commissioner of the Customs, where he proved himself exceptionally efficient, capable, and devoted to the Court. In 1684 he was promoted Commissioner of the Treasury, but he relinquished this office soon after the accession of James II, returning again to the Customs, where he continued until shortly after the Revolution. A confirmed and notorious Tory, he retired completely from political life thereafter, and took up some desultory business dealings in London. He died suddenly on December 31, 1691.

John North, the next brother (1645–1683), was the scholar of the family, collector of an especially fine Greek library, and brilliant critic and linguist. He entered Jesus

College, Cambridge, in 1661, and became a fellow in 1666; by 1677 he was Professor of Greek and Master of Trinity.

The author of the *Lives*, Roger North (1653–1734), was not the least remarkable of these brothers. A lawyer, he was always overshadowed by Francis, but he was considered sufficiently capable to be King's Counsel and Queen's Attorney General. His greatest merits, however, appeared in his private life. Here he was the model of a devoted brother. Before a late marriage, he had shared quarters with each of his brothers in turn, and had benefited from each in some considerable way. He repaid those favours when, having long outlived all of them and therefore left to manage the affairs of all the widows and orphans of the family, he bore, as he said, " burdens to oppress porters ". He was as much concerned with his brothers' reputations as with their responsibilities. He answered the political attacks made on them by composing the *Examen*, a laborious justification of their political careers. Feeling that this was not enough, he also wrote the *Lives*, with the expressed purpose of rescuing " the memories of these distinguished persons . . . and for that end, bring their names and characters above-board, that all people may judge of them as they shall appear to deserve ".[1] Roger North was in the best sense of that age a cultivated gentleman: sincerely pious, conservative, honest, kind, and active. He wrote voluminously, but published during his lifetime only one small treatise on fishing. There have since been edited from his manuscripts valuable books on music, accounting, the study of law, and the English Constitution. There remains in unpublished manuscript form a long series of essays on philosophical and scientific subjects.[2] It seems probable that but for this reticence a man of his character and accomplishments would not have remained so obscure and unrecognised.

The *Lives* are first-rate literary biographies. The author coupled with pride in his brothers an informed sympathy for their careers, based on his own experience. In addition, he was an accomplished stylist. As a result of his aims and abilities, the *Lives* are not mere compilations of appearance, act, and event; Roger North was anxious to show the probity, independence, and individual intellectual outlook of each brother. He consequently gives a full exposition of the subjects' ideas. In the course of discussing Sir Dudley's political career, Roger mentions his views on trade and the pressing problem of the faulty coinage then current in England. He writes that Sir Dudley published these views in 1691 in a pamphlet, titled " Discourses upon Trade; Principally directed to the Cases of the Interest, Coynage, Clipping, Increase of Money ". He recalls that this pamphlet appeared some years before the coinage was finally reformed in 1696, and points out that the reform carried through was inferior to that which Dudley North suggested. He then adds:

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[1] *Lives*, volume I, p. xiv. I have quoted throughout from the three volume edition, London: Colburn, 1826.

[2] Cf. fn. 3, page 48.

> " And whether any use of his pamphlet was made, or not, . . . it is certain the pamphlet is, and hath been ever since, utterly sunk, and a copy not to be had for money. And if it was designedly done, it was very prudent; for the proceeding is so much reflected on there for the worse, and a better showed, though not so favourable to abuses, as doth not consist with that honour and *eclat*, as hath been held forth upon the occasion."[1]

Even if the pamphlet had been sunk, Dudley North's views on trade and coinage were available in Roger North's précis as early as 1744. No eighteenth century economist, however, noticed them. Only in the early years of the nineteenth century, when economics had begun to be a recognisable discipline with its own pretensions and gospel, did economists display any interest in the history of economic theory. Only then was Sir Dudley recognised.

His importance was first impressed on economists by James Mill. In an article on " Economists ",[2] which first appeared in 1818, Mill diverted his attention from the Physiocrats to mention " some few minds in England, which, at a comparatively early period, had attained to wonderfully correct notions on the principles of commerce ". Among them, the most remarkable was Sir Dudley North. Mill proceeds to quote in full two long extracts from Roger North's *Lives* which summarise Sir Dudley's economic views. He also quotes Roger's suspicions concerning the disappearance of the pamphlet and adds: " The complete extinction of this pamphlet is but too probable; for though the writer of this article has made search for it in every possible way, for several years, he has never seen it, nor met with an individual who had". Interest in Sir Dudley as an economist was at this time still slight, for although Mill himself had searched for the *Discourses*, he evidently felt that few others would even have read North's *Lives*, or have noticed the passages which he quoted.

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[1] *Lives*, III, p. 173.

[2] *Supplement to the Fourth, Fifth, and Sixth Editions of the Encyclopædia Britannica*, Edinburgh: Constable, 1824, 6 vols. III, pp. 708–724; the quotation given is from pp. 709–10.

Once refurbished, Sir Dudley's reputation among economists grew. In 1824 McCulloch published a work which treated earlier economic doctrines not merely as errors to be condemned or as truths to be affirmed, but as successive stages in the development of economic knowledge. This book, which was thus the first intentional history of economic thought, is the *Discourse on the Rise, Progress, Peculiar Objects, and Importance of Political Economy*. McCulloch re-used much of the material of this essay, only slightly revised, first in the *Principles of Political Economy* (1825), then in the "Introductory Discourse" to his edition of Adam Smith's *Wealth of Nations* (1828), and again in the *Literature of Political Economy* (1845). In each work he reiterates his judgment that North's *Discourses* contain "a far more able statement of the true principles of commerce than any that had then appeared. He is throughout the intelligent and consistent advocate of commercial freedom . . . His system is consentaneous in its parts, and complete".[1]

McCulloch's persistent efforts to establish Sir Dudley's significance were very much aided by the discovery of the pamphlet, which McCulloch describes in these words:

> "Unluckily this admirable tract did not obtain any considerable circulation. Indeed it would appear from the statements in the very interesting *Life* of the author . . . that it had been designedly suppressed; and it was for a lengthened period supposed to be entirely lost. Fortunately, however, this supposition has turned out to be incorrect. A copy of the tract, which had found its way into the library of the late Rev. Rogers Ruding . . . was purchased at the sale of his books by a gentleman of Edinburgh, who printed a few copies for distribution among his friends. We have since stumbled upon two copies of the original edition."[2]

The reprint to which McCulloch refers is that of 1822, of which it is said that eighty copies were issued.[3] Another reprint was published in 1846; according to a less than reliable authority, it was issued by one M. Napier in eighty copies. McCulloch himself reprinted the *Discourses* in 1856, and J. H. Hollander edited the latest reprint in 1907.[1]

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[1] *The Principles of Political Economy*, London: Longman, 1830 (2nd ed.), p. 42.

[2] *The Literature of Political Economy*, London: Longman, 1845, p. 43.

[3] Dr. Lippert, "North, Dudley (Sir)", pp. 37–39, vol. 5, 1893, of Conrad, *et. al.*, *Handwörterbuch der Staatswissenschaften*, Jena: Fischer, 1890–4, 6 vols.

North's reputation was established by McCulloch. About North's stature as an early economist there has since been little debate; about the meaning of his *Discourses* there has been only a reasonable amount of disagreement; but about the historical facts concerning North and the *Discourses* there is a remarkable accumulation of misinterpretation and error.

There were in Sir Dudley's life very few dates that are likely to interest economists; perhaps those of his birth, death, return to England, and certainly that of the publication of the *Discourses*. About the first three of these there can be little doubt. Roger North gives the birthday as May 16, 1641[2]; and the date of death as December 31, 1691.[3] There is clear evidence that Dudley returned to England in June or July 1680.[4] The date of publication of the *Discourses* is a more complex question, which will be considered later; it is sufficient to note here that the original edition bears the imprint " 1691 ", and this date is confirmed by Roger North.[5] Even about these dates, however, the historical literature shows great confusion.[6]

These errors, though trivial, are indicative of more serious mistakes concerning the *Discourses* themselves. One of the most serious concerns the suppression of the pamphlet. The tradition about the disappearance of the *Discourses* starts with the statement, given above, by Roger North. The statement is ambiguous; Roger merely says that *if* the *Discourses* were suppressed, it was for a good reason. This view of the matter, Mill did nothing to change; he merely quoted North on suppression and remarked that he had not been able to find a copy of the pamphlet. McCulloch, on the other hand, added an ominous note: he found "good reason . . . for supposing, that it was designedly suppressed".[1] But it was left to Roscher, in 1851, to give the tradition an entirely new life. Sir Dudley, he wrote,

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[1] The attribution to Napier is by Lippert, *op. cit.* McCulloch's reprint is in *Select Collection of Early English Tracts on Commerce;* Hollander's in his *Tracts*, Baltimore.

[2] *Lives*, II, p. 289.

[3] *Ibid.*, III, p. 231; this is confirmed by a letter written that day, British Museum Additional Manuscripts, 32,500, f. 139, and by that day's entry in Luttrell's *Diary*.

[4] Add. Mss. 32,500, f. 37 is a letter from his mother, dated 25 July, 1680, speaking of his arrival at Tostock, as does f. 38. *Lives*, III, p. 97 indicates that he spent some time in London before going to Tostock. He probably landed in England in early July.

[5] *Lives*, III, p. 169.

[6] Dr. Lippert (*op. cit.*) gives incorrect dates about both birth and death; with more precision than accuracy he states the former as 16/3/1644, and the latter as March, 1691. A. Jessopp in the *Dictionary of National Biography* (" Sir Dudley North "), has these dates right but makes Sir Dudley return to England in Autumn, rather than Summer, 1680. Raffel, in his study on *Englische Freihändler vor Adam Smith* (*Zeitsch. Gesamte Staatsw.*, Tubingen, 1905), p. 46, repeats this error. Beer, *Early British Economics* (London: Unwin, 1938), p. 209, is in error about the date of the *Discourses*; he writes they were published in " 1690, about a year before his death ", and for no apparent reason attributes the 1822 reprint to McCulloch. According to the *Dictionary of National Biography*, the *Discourses* were published " only a few months before his death ", a statement for which no evidence is stated or obvious. Also the *Dictionary of National Biography* speaks of Sir Dudley's two sons, whereas the letter referred to in fn. 4 above, makes it clear that he had three sons.

> "may have believed that a Revolution, which used 'Freedom and Property' as its shibboleth, would have given the doctrine of free trade a very favourable reception. He was, however, badly mistaken. In England this very revolution contributed to the highest development of the system of protection and prohibition, which was applied equally to foreign nations and the British colonies. What a shock for North! A man of his character must have regretted bitterly having taken so much trouble to publicise such unpalatable truths. This situation suggests a fairly simple explanation of the enigmatic disappearance of his work for over a hundred years."[2]

According to Roscher, North must have suppressed his own pamphlet. But Roscher did not explicitly insist on suppression—he only insinuated an "enigmatic disappearance". Roscher's innuendo was made explicit by Lippert:

> "Supposing that the economic consequences of the Revolution would be a victory of the principle of free trade, he published his treatise in 1691; but he was obliged only too soon to yield to the conviction that the result of the Revolution would rather be the extremest intensification of protectionist measures. This turn of affairs induced him, out of regard to his social well-being . . . to get rid of this pointed evidence of his free-trade opinions by buying up and destroying the whole edition."[3]

At this stage, Sir W. J. Ashley made an attempt to deflate the myth. Criticising Lippert's version, he insisted that Roger North simply meant that the government had suppressed the *Discourses*. But Ashley's effort[1] was evidently not sufficient to curb the force of the myth, to judge by Heckscher's assertion, as recently as 1935, that the *Discourses* "remained entirely unknown, and it is not even certain that it was ever published."[2]

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[1] *Principles*, pp. 44–5.

[2] *Zur Geschichte der Englischen Volkswirtschaftslehre*, Leipzig: Weidmann, 1851, pp. 86–7. (My translation.)

[3] Lippert, *op. cit.*, translated and quoted by Ashley: "The Tory Origin of Free Trade Policy", reprinted in his *Surveys Historic and Economic*, London: Longmans, 1900, pp. 268–303; the passage quoted is on p. 294. Ashley believed that Lippert took this suggestion from McCulloch, but the closeness with which Lippert follows even the organisation of Roscher's account seems to demonstrate conclusively where he took his lead.

This whole critical tradition sprang from one fact and one statement. The fact was that until 1822 no copy of the *Discourses* was known to exist. But this should not have been thought strange. Many seventeenth century publications, never believed to have been suppressed, are to-day still "utterly sunk". In any case, there must by now be at least a dozen copies of the original edition of the *Discourses* in various libraries and private collections. In fact, the *Discourses* do not appear to be any more rare than many contemporary publications. The only evidence left is Roger North's statement. It is fortunate that the origin of that statement is almost as easy to trace as the genesis of the tradition to which it gives rise.

Roger North first wrote a life of Sir Dudley in 1709. These "Memorialls of the Liffe and actions of Sir Dudley North Kt." were never published, but exist in manuscript in the British Museum. The manuscript shows signs of at least two revisions. Roger North, who was a careful and patient worker, at some later date prepared a completely new manuscript, also available in the British Museum, from which the printed version was apparently taken. This second draft likewise shows signs of considerable revision, and a clean copy was probably made for the printer by Roger's son and literary executor.[3] The various stages in Roger North's composition of the suppression story can be traced through the two manuscripts, but the last version in the first draft is the most revealing. Roger criticises the proponents of the recoinage of 1696, and continues :

> "And one circumstance almost persuaded me that the early promoters of that great work were at first enlightened and instructed by that pamphlet, which is that the impression hath been sunk. For at the time of the law passing I made inquiries after it and could not then or ever since hear of one . . . . I cannot say they were all bought up, with design to appropriate the notions, . . . as plagiarizers use to do, who arrogate to themselves the inventions

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[1] *Surveys*, p. 296.

[2] *Mercantilism*, II, p. 322 (The English edition).

[3] The 1709 draft is Add. Mss. 32,512 ; the later one, which is complete, is 32,513.

> of others without any recognition at all. Nor [can I say] that the thoughts were so inspired and not really and originally their own. But I may venture to say that either the one or the other might have been the case, and that it is most proper to conclude it was so, because the pamphlet appeared in public some time before the money-menders had anything to do with the public, and then disappeared."[1]

Whether this is a true or plausible picture, it is clearly not the same one implied by the version in the printed *Lives*. North dressed and re-dressed the incident, and finally settled on an account that made no mention of plagiarism, and only hinted at suppression. His evidence on this point seems far from trustworthy, and the constructions that have since been built on his insinuation accordingly lack adequate foundation.

With appropriate caution about the credibility of Roger North and the credulity of later historians, the evidence and the critical tradition bearing on the authorship of the *Discourses* may now be examined. The *Discourses* were published, their title page tells us, for "Tho. Basset, at the George in Fleet-Street. London. 1691". No author's name is shown on the title page or elsewhere. The pamphlet opens with "The Preface" of ten pages. The text that follows consists of "A Discourse Concerning the Abatement of Interest", "A Discourse of Coined Money", and a "Postscript", all together about thirty pages long. The first discourse argues that interest rates should not be limited by law, since they will always, in fact, be regulated by the market. The second discourse offers a remedy for "clipping"[2] which would make bad coin a personal liability to whoever held it at some designated future date. The postscript, in answer to contemporary complaints of the shortage of money, maintains that there can never, for any length of time, be either too little or too much money in existence. These are the practical conclusions which North reaches, but he justifies them by a relatively profound argument about the nature of trade and of money.

Since the original edition of the *Discourses* was published anonymously, the only explicit evidence bearing on their authorship is Roger North's statement in the *Lives* that Sir Dudley " put his sense in the form of a pamphlet, and, sitting the convention (or some time after it was turned into a parliament) in 1691, published it, printed for T. Basset, and entitled 'Discourses upon Trade' . . . ".[1] Although this is slim evidence, there seems to be no reason to doubt Roger's assertion. There are, however, grounds for doubting that Sir Dudley wrote the Preface to the *Discourses*.

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[1] Add. Mss. 32,512, f. 124.

[2] "Clipping" was the cutting of silver from the unmilled edges of old coins. Since this reduced the metallic content, but did not affect the face-value, their real value came to depend on whether any single seller accepted coin by weight or by tale. The coinage became a very uncertain commercial instrument.

This doubt arises, in the first place, from the opening lines of the Preface:

> " These Papers came directed to me, in order, as I suppose, to be made Publick: And having transmitted them to the Press . . . I am absolved of that Trust.
>
> The Author is pleas'd to conceal himself; which after perusal of his papers, I do not ascribe to any Diffidence of his Reasons, the Disgusts of Great Men, nor overmuch Modesty, which are the ordinary Inducements for lying hid; but rather to avoid the Fatigue of digesting, and polishing his Sentiments into such accurate Method, and clean style, as the World commonly expects from Authors . . . ."

The author of the Preface maintains throughout the distinction between himself and the author of the *Discourses*, his " unknown confidant ". But that distinction has been either overlooked or denied by historians. McCulloch did not mention the question of authorship, although he quoted the economic maxims stated in the Preface as if Sir Dudley had written them. Although Roscher saw the problem, he gave a strange explanation. North, he said, hoped to ingratiate himself with the Whig government by writing a free-trade polemic. But frightened by the novelty of his own views, North " took the precaution to pretend that his book had been written by a friend, and that he had only published it ".[2]

Roscher's theory leaves several questions unanswered: How could North have pretended to publish the book, when his name was nowhere present? If North was trying to ingratiate himself, why hide his name? Or, if he was hiding his name, why pretend to have written the Preface? Roscher's thesis creates more difficulties than it explains.

Other historians of economic theory have followed McCulloch in treating the content of the Preface as though

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[1] III, p. 169.

[2] Roscher, *op. cit.*, p. 86.

Sir Dudley were its author. Only Professor Schumpeter has explicitly considered the authorship of the Preface:

> " The remarkable preface, though presented as the work of someone other than North, is of a style unmistakably similar to that of the text. It includes a familiar opposition, in terms of the new scientific method, between realistic, scientific economic theory, and the 'ordinary and vulgar conceits being meer husk and rubbish'. And the whole train of ideas of both Discourses . . . honours this methodological principle."[1]

Schumpeter rejects the explicit ascription of the Preface to some unknown preface writer. He infers from the similarity of style between them, and the adherence of the text to the methodological prescriptions of the Preface, that the Preface is a joke by Sir Dudley, in which the already anonymous author masquerades as another anonymous character, the preface writer. The *Discourses* are then a monument to a passion for anonymity.

Those historians who have given the fourteen economic maxims of the Preface as a summary of North's argument, must either have accepted an argument like Schumpeter's, or believed that even if the Preface writer was not Sir Dudley, the fourteen points are a fair summary of the conclusions of the text. In fact they are not; Preface and text disagree on important points.[2] If the ideas of the Preface are not Sir Dudley's, then the history of economic theory must record two economists, the author of the Preface, and the author of the text. It is therefore pertinent to examine the two bases on which Schumpeter resolved the question for himself. The first of these is what Schumpeter described as an unmistakable similarity in style between preface and text. The author of the Preface explains in a polished, sonorous paragraph, quoted above, that the author of the text did not desire to digest and polish " his Sentiments into such accurate Method, and clean style, as the World commonly expects from Authors ". He continues that the author's anonymity saves him from being taken for " either a careless or illiterate Person ". In fact, he spends the first third of the Preface defending the style of the *Discourses*. We are left to conclude that he had no high opinion of it.

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[1] Schumpeter, J., " Epochen der Dogmen- und Methodengeschichte ", *Grundriss der Sozialökonomik*, Tubingen: Mohr, 1924; Vol. I. pp. 19–124; p. 31. (My translation.)

[2] See the Appendix which follows.

An independent judgment of Sir Dudley's style may be based on a sample such as the first lines of the first discourse:

> "Arguments for Abatement of Interest are many, viz.
>
> I. When Interest is less, Trade is incourag'd, and the Merchant can be a Gainer; whereas, when it is great, the Usurer, or Money-owner takes all.
>
> II. The Dutch, with whom Interest is low, Trade cheaper, and under-sell us.
>
> III. Land falls in value, as Interest riseth.
>
> With divers others, whereof the Facts may be true, but proceed from another Cause, and conduce nothing to the purpose for which they are alledg'd."

This and similar passages bear out the Preface writer's contention that the text lacks precision and polish. The writing does have a certain force and breathlessness, but its pace is irregular. The *Lives* show other examples of Sir Dudley's writing, all with similar characteristics: dryness of style, lack of grace, and complete absence of literary allusion. Thus a letter opens:

> "We departed from the town by the ship's boats, which had then lain a full week at the castles, where all the day was spent in feasting and taking leave of our friends. Towards night we all set sail; but, the wind being fresh out of the sea, by our short tacks to get out, we made but little or no advantage. So we came to an anchor again at night, and lay all next day, which was Sunday. Our Smyrna friends had left us the day before; so we went and dined aboard the Massingbird, and, after dinner, walked on shore to the hot waters, some two miles, or better, from the castle. It was a pleasant walk, being all even, or else an undiscernible ascent."[1]

In fact all the writings of Sir Dudley bear an unmistakable resemblance to each other, but none of them resembles the rich, flowing, allusive style of the Preface, which deserves recognition as a gem of Restoration prose style. A further example will illuminate the contrast. Still concerned with defending the style of the *Discourses*, the Preface writer remarks:

> "I grant also, that delicacy of Words, now most used in Poetry, is useful for disposing way-ward People to learn, or make them endure to read. But the World is not at such low ebb of Curiosity

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[1] *Lives*, III, p. 78.

> in this age. Men are forward enough to run their Noses into Books, especially such as deal in Faction and Controversie: And it were well if they were either Wrote or Read with as much Integrity as Industry; we have no need of Sugar-plum devices to wheedle Men into Reading . . ."[1]

On the grounds of style alone, the theory that the Preface was written by Sir Dudley seems to fail. The theory that Sir Dudley was masquerading cannot explain away the difference in style; no joke would make him suddenly capable of writing as he had never written before. For that matter, if he could have written the Preface, why did he not write the discourses in the style of the Preface, and so save himself the long apology? Is it likely that Sir Dudley, who was not over-educated and had never previously shown signs of wide reading, could suddenly quote Horace, Tully, and the other authors mentioned in the Preface? One can only conclude that Sir Dudley could not and did not write the Preface.

Schumpeter's second ground for maintaining that Sir Dudley wrote the Preface is that the text follows the methodological prescriptions of the Preface. Although this is true, it does not imply what Schumpeter suggests. The simple interpretation of the Preface is that it was written after the discourses themselves: "These papers came directed to me . . ." If we accept that Sir Dudley did not write the Preface, then it must have been written after the discourses. This being so, the "methodological prescriptions" of the Preface are not prescriptions. They are merely a description of the methodology used in the discourses, a description written by a man who was looking at the completed text and interpreting its logical pattern. The agreement between Preface and text about methodology, therefore, does not prove the single authorship, but only shows that the Preface writer correctly understood and described the methodology used by Sir Dudley.

If then Sir Dudley did not write the Preface, what theory about the *Discourses* is correct? To find the true author of the Preface we must return to the *Lives*. The history of Sir Dudley's production of the discourses is there recounted as follows. Sir Dudley was greatly offended, writes Roger North, by "the currency of clipped money". He "was resolved, that, if ever he sat in another sessions of parliament, he would bid battle" to the idea that the value of coin is determined by its face rather than by its metallic content. "And, being full of the subject,"

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[1] *Discourses Upon Trade; Principally Directed to the Cases of the Interest, Coynage, Clipping, Increase of Money*, London: Tho. Basset, at the George in Fleet Street, 1691. Preface (iii). (All citations to the *Discourses* are according to the pagination of the original edition, which is preserved in the reprints of 1822 and 1846.)

> "he eased his mind by laying down his reasons upon paper; and the fancy took him to do it in the form of a speech in the House of Commons . . . . But the parliament, in which he served, was dissolved; and he came no more within that pale. But afterwards, finding that the grievance of clipped money became insupportable, and with design that, since he could not, some other persons might push for a regulation . . . and to incite them to it, he put his sense in the form of a pamphlet, and sitting the convention (or some time after it was turned into a parliament) in 1691, published it . . ."[1]

Roger North's account is supported by evidence contained in the manuscripts which family pride, legal training, and interest in history prompted him to collect. He was so ardent a collector, that he even violated his brother John's intention to destroy all his papers.[2] All Roger North's booty is collected in over fifty large volumes of manuscripts written by him and his brothers.[3] Among them is part of a draft of the "speech" referred to, and in both drafts of his life of Dudley Roger had originally included its full text. The separate draft is endorsed, "A proposal intended to be made in parliament in order to regulate the coin, Jn, 1683".[4] In the first draft of the life, Roger North refers to the speech as "A representation intended to be laid before the parliament in the year 1683 concerning the bad condition of the money current in England, and the means to remedy it."[5] Sir Dudley may have written the speech in 1683, but he could not have presented it in Parliament that year: there was none in session between March 1681 and May 1685.[6] Besides, Sir Dudley was first elected to Parliament in 1685.[7] But although the date is questionable, the manuscript version of the speech is certainly what North refers to in the printed *Lives*, and its content accords with his description. The speech is written in Sir Dudley's style, and deals both with clipped money specifically and with the underlying theory of money. It differs from the text of the *Discourses* not in what it proposes, but in what it overlooks. It is nothing more than a well-argued proposal for reforming the coinage. Because it lacks any discussion of free-trade, it would never have endowed Sir Dudley with any great reputation among economists.

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[1] *Lives*, III, pp. 168–9.
[2] *Lives*, III, p. 343.
[3] Add. Mss. 32,500 to 32,551, in the British Museum.
[4] Add. Mss. 32,522, f. 26.
[5] Add. Mss. 32,512, f. 117b.
[6] Maitland: *Constitutional History*, pp. 295–6.
[7] *Lives*, III, p. 159.

Continuing Roger North's narrative, we find that Sir Dudley after failing to deliver his address, " put his sense in the form of a pamphlet ", which he published at a curious date : " sitting the convention ", that is, after January 1689 ; " or some time after it was turned into a parliament ", that is, between 1689 and early 1690[1] ; " in 1691 ". Before considering this question of dating it is interesting to examine the manuscript version of the *Discourses*, which is preserved with the North papers.[2] This is a final draft, which is, except for typesetters' errors, identical with the printed text. It is in Roger North's handwriting throughout, except for a dozen words in the second discourse which are in Sir Dudley's handwriting.

The presence of Roger North's handwriting on a final draft of the *Discourses* raises the question of his connection with the work. Was he simply employed as a secretary or copyist, is this manuscript only a copy he made for his own files, or did he have some more creative role in the writing of the *Discourses* ?

The answer is suggested by some passages in the early drafts of the *Lives* which Roger suppressed in the printed text. First, in the early draft, after discussing the speech on coinage, Roger remarks :

> " These were his first profers, but he went further, and composed a sort of tract upon the subject, which the writer of these papers digested, and a little touched the style (for he thought he had not one just enough for the public)."[3]

This " sort of tract ", of which Roger " a little touched the style " was the *Discourses*. Again in the second draft of the *Lives*, Roger mentions the *Discourses*, then adds, " The style was a little touched by me, but the whole sense, and chiefly the penning were his own".[1] These passages were excised and the *Lives* as printed do not mention Roger's connection with the *Discourses.*

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[1] The Convention Parliament was dissolved early in 1690, Maitland : *op. cit.*, p. 284.

[2] Add. Mss. 32,522, ff. 1–16.

[3] Add. Mss. 32,512, f. 123. " To digest " was " To put into good order ".

In view of Roger's capability for harmless error and invention, it may be well to consider what other evidence there is of his participation in the *Discourses.* First, the state of the manuscript *Discourses* is revealing. In the Preface Roger made many bold changes. In the first discourse he added two paragraphs, but changed little else. The second discourse is most revised of all. Its margins are dotted with over a dozen "q"s in Roger's hand, and only in this section does Sir Dudley's distinctive handwriting appear. This suggests that unlike the other sections of the manuscript, here Roger had an opportunity to consult with Sir Dudley about the text. He entered "q" in the margin opposite any point about which he had a query, and in discussing these questions together, Sir Dudley made a few of the necessary amendments in his own hand.

Consideration of this manuscript suggests a hypothesis which explains why Sir Dudley marked only part of the draft, why the *Discourses* happens to have a Preface at all, and who wrote it. The hypothesis is that Sir Dudley dictated a draft of the two discourses and the postscript to Roger, that Roger then took it away for editing, returning with certain queries about the second discourse, which he discussed with Sir Dudley. At about this time the draft was shown to Basset, the printer, who announced it for publication in November, 1691.[2] For some reason Roger and Sir Dudley were unable to meet again to discuss the rest of the draft before Sir Dudley's unexpected death on December 31, 1691. Roger then hastily revised the first discourse and the postscript, and wrote the Preface to defend the style of the text, to honour the trust which Dudley had left him, and to provide a badly needed introduction. The *Discourses* were then published before March 25, 1692.

Both internal and external evidence support this hypothesis. That Sir Dudley dictated the draft to Roger is hinted at in the Preface, where in extenuating the style of the text, Roger wrote: "Nor do I perceive that the Gentleman intended more than his Title holds forth; common Discourses, which possibly were taken by an *Amanuensis*, and dispatch't without much Correction". Taken with the fact that the manuscript is written in Roger's hand, this appears at least quite likely. The idea is further supported by a suggestion elsewhere, that Sir Dudley preferred to think on his feet.[1]

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[1] Add. Mss. 32,513, f. 112.

[2] It is listed in the *Term-Catalogue* for that date. See Arber, Edward: *The Term Catalogues, 1668–1709*, London: Arber, 1903–1906, 3 vols., vol. 2.

That Roger then took the draft away for polishing is a conjecture supported by his statement, quoted above, that he "touched the style", and by the presence of the query marks in the margin. Why Roger and Dudley broke off their joint correction of the manuscript is not altogether clear. But Roger records that in 1691 he and Dudley parted late in September, that Sir Dudley did not return to London until October or November, by which time his wife, already aware of his illness, reported that "he had no heart or spirit to mind things . . ." On returning to town he caught cold, and remained constantly ill until his death.[2] It is certainly possible that Sir Dudley was never well enough after autumn 1691 to undertake the revision.

Although the *Discourses* were advertised in the *Term Catalogue* for November 1691, and the *Discourses* bear the imprint "1691", there is reason to believe that they could have been printed as late as March 25, 1692. Stranger anachronisms have resulted from the confusion of Old and New calendars. In 1691, England was still going by the Julian calendar, according to which each new year was numbered from March 25th. January 1, 1691, was then the day *after* Sir Dudley's death on December 31, 1691, and the year 1691 continued until March 25th. A book published after Sir Dudley's death might just as well bear the imprint 1691 as, for instance, Roger North's letter, dated January 7, 1691, which discusses Sir Dudley's funeral.[3] Nor does the advertisement of the *Discourses* in November 1691 create any difficulty. More than one book was advertised in the *Term Catalogue* before its printer had so much as seen a final draft of it, and many books advertised in November did not appear until the next year.[4]

The concluding proposition of the hypothesis about the authorship of the *Discourses* is that Roger North wrote the

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[1] *Lives*, III, pp. 168–9.
[2] *Lives*, III, pp. 228–9.
[3] Add. Mss. 32,500, f. 141.
[4] Arber: *op. cit.*, vol. I, p. xi, sect. 27.

Preface. Considerable support for this thesis is yielded by the Preface itself. First, it contains literary allusions, which the text does not. Whereas Sir Dudley had little formal education, Roger had much. He entered Jesus College in October 1667,[1] in his fourteenth year, as was then common. He was under the tutorship and lived in the rooms of his brother, John, the Greek Professor, who kept him hard at work. At Cambridge, Roger became a devotee of the " natural philosophy, which they call physics, and particularly Descartes ". Although Cartesian philosophy was railed at and even forbidden, " there was a general inclination, especially of the brisk part of the University, to use him, which made me conclude there was somewhat extraordinary in him, which I was resolved to find out, and at length did so . . . ".[2] Roger maintained his admiration as late as 1706 when he wrote of Descartes' " felicity in lucid expression, and his hints . . . clearer than the glosses of others ".[3]

In the Preface to the *Discourses*, we find the author expressing a similar interest in and admiration for Descartes. He commends " Des Carte's excellent dissertation *de Methodo* ". He continues: " Knowledge in great measure is become Mechanical; which word I need not interpret farther, than by noting, it here means, built upon clear and evident Truths."[4] This is an interesting observation: its first clause seems to follow more than casually the words of the first English translation of Fontenelle, the populariser of Descartes, " Philosophy is now become very Mechanical "; the concluding phrase, " clear and evident truths ", was the Cartesian battle-cry. The Preface commends the author for his use of a method introduced by " the new philosophy "[5]; " the Philosophy of Descartes, or the New Philosophy " is the way a contemporary puts it.[6] The explicit Cartesianism of the Preface conforms to Roger North's training and life-long interest in the new philosophy.[7]

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[1] *The Autobiography of the Hon. Roger North*, ed. Aug. Jessopp, London: Nutt, 1887, p. 14, fn.

[2] *Ibid.*, p. 15.

[3] *Ibid.*, p. 255.

[4] *Discourses*, Preface (vi).

[5] The passage by Fontenelle is from his *Plurality of Worlds* (1688).

[6] The passage from the *Discourses* is at Preface (v). Roth: *Descartes' Discourse on Method*, p. 2, quoting *Voyage du Monde de M. Descartes*, Father Daniel, Eng. transl. 1692, pp. 176ff.

[7] *Autobiography*, Chap. VI, and Add. Mss. cited.

Again, there is no Latin in the discourses. The Preface, on the other hand, cites Horace and alludes to Cicero.[1] Although there is no evidence that Roger North was a great Latinist, he had studied the language and was obviously competent in it.[2] The Preface writer on several occasions employs legal metaphors: the public " stamps judgment and execution " on authors, and a more extended comparison is based on the language of " the lawyers in their Deeds ". These are the verbal tricks of a lawyer—Roger. In addition, the Preface writer refers to Montaigne, and to the *Scalligerana*, *Pirroana*, the *Pensees* of Pascal, and Selden's *Table Talk*.[3] All these allusions are very much in character with Roger North. The Preface writer uses the Latin phrase, " ejusdem farinae ", a somewhat pompous substitute for " more of the same thing ".[4] This quite uncommon phrase recurs only once in all the literature surrounding the Norths —and that is in Roger North's autobiography.[5]

Other even closer parallels exist between the Preface and the *Autobiography*. On the question of literary style, Roger wrote the following lines in his *Autobiography*:

> " [Business men] keep to the business and nothing else. And that is the substantial part which outweighs all other embellishments . . .
>
> On the other side, that which is with some a felicity, as loving to write or to speak orderly, with many proves a failing, and of a ridiculous kind that is empty wordiness. A readiness of words wheedles one to an excess of complaisance to it, and to neglect the material part, which many look first after, for we think the jargon, when apt and clever, serves the turn, whereas the other extreme, want or difficulty of words, makes men attend the matter, and strive by quintessence of that to supply their defect of clever expression.[6]

This passage could hardly resemble more closely the Preface writer's rendition of the same ideas:

> " The Merchants in their policies and exchanges use no one word but what is necessary to their point . . . because the Matter and Substance only is intended and not the dress . . .
>
> Words are indeed a felicity, which some have in great perfection; but many times, like a fair face, prove Temptations to Vice; for I have known very good Sence neglected, and post-poned to an

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[1] *Discourses*, Preface (ii).
[2] *Autobiography*, p. 17.
[3] Preface (iv).
[4] *Ibid.* (viii).
[5] *Autobiography*, p. 195, line 20.
[6] *Ibid.*, pp. 197–8.

> Elegance of Expression; whereas if Words are wanted, the whole effort is made by pure strength of Reason, and that only is relied on."[1]

Similarly, other comments by Roger North on Sir Dudley's style, such as that he had "a faculty of expressing himself, without show of art, or formality of words",[2] and that his pen like his discourse was

> "quaint and clear . . . for he sought to be understood, and to avoid superfluity; and never formally composed any thing, with pretence of exactness of style, or niceness of method."[3]

are similar to many judgments in the Preface, such as, for example:

> "As for the Method used in these papers, there is so little of it affected, that I am afraid some will say there is none at all . . . What could the formal Methodist add?"[4]

There can remain little doubt that the Preface was written by Roger North, and that the circumstances of its composition are accurately explained by the hypothesis set out above. But if Roger wrote the Preface, who really developed those ideas which, though contained in the fourteen economic maxims of the Preface, do not occur in the text? To answer this question, we must review the relationship between Roger and Dudley.

When Dudley left England he had just reached maturity, while Roger was a schoolboy of nine. They probably hardly knew each other. But when Dudley returned to England eighteen years later, he and Roger were long-term guests together in Guilford's house. Roger records that they then "grew into close alliance and friendship, which continued untainted to his death",[5] and that he "had the conversation and friendship of . . . brother Dudley".[6] Much of their conversation revolved around Sir Dudley's ideas on trade, and Roger, a commercial lawyer and public official, must have been an interested and intelligent listener. In the *Life* of Dudley, Roger reports many of these conversations, and the reports bear a certain resemblance to some of the maxims in the Preface and some of the notions expressed in the discourses.[1]

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[1] Preface (ii).
[2] *Lives*, I, p. 351.
[3] Add. Mss. 32,512, f. 124b.
[4] Preface (iii–iv).
[5] *Autobiography*, p. 189.
[6] *Ibid.*, p. 194.

This may only mean that Roger North refreshed his memory, while writing his *Life* of Dudley, by reading the manuscript of Dudley's discourses. But this does not explain the origin of those of the maxims that do not correspond to the text.

It may be concluded that Roger took many of his own economic ideas from conversation with Sir Dudley. When he came to write the Preface to Dudley's discourses, he included some ideas which he knew to be Dudley's, even though they did not appear in the text. But he included some which apparently did not derive from Dudley. This is borne out by some inconsistencies in the text of the *Discourses*. The last paragraph of the second discourse, and the last paragraph of the postscript are set off typographically, stylistically, and logically from the preceding matter. They look as though they should be, but they are not, summaries of the preceding arguments. And it is these paragraphs which form the major grounds for hailing Sir Dudley as a great free-trader. They read as follows:

> "So to conclude, when these reasons, which have been hastily and confusedly set down, are duly considered, I doubt not but we shall joyn in one uniform Sentiment: That Laws to hamper Trade, whether Forreign, or Domestick, relating to Money, or other Merchandizes, are not Ingredients to make a People Rich, and abounding in Money, and Stock. But if Peace be procured, easie Justice maintained, the Navigation not clogg'd, the Industrious encouraged . . . the Stock of the Nation will increase . . ."
>
> "Thus we may labour to hedge in the Cuckow, but in vain: for no people ever yet grew rich by Policies: but It is Peace, Industry, and Freedom that brings Trade and Wealth, and nothing else.[2]"

The paragraphs agree on the commercial importance of Peace. The thirteenth maxim of the Preface similarly maintains: "That money . . . spent in war . . . is so much impoverishment". This noble sentiment appears nowhere else in the text with the exception of the two paragraphs quoted. It is very probable that Roger North was entirely responsible for this idea, which he inserted into the maxim and the concluding paragraphs.

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[1] See Appendix.

[2] *Discourses*, pp. 22–3, and "Postscript" (v).

The sentiments expressed in the two paragraphs and in those maxims not organically related to the text go beyond mere war-weariness; they outline a credo of free-trade. Even if Sir Dudley North did not write these passages, he remains an important economic theorist. But since Roger North very probably did write them, it is he rather than Dudley who should be listed among the early free-traders.[1] Roger North, who worked to rescue his brother's memory, ought now to have the same office performed for him.

Chicago.

APPENDIX

Maxims of Preface to the *Discourses*, with comparable passages in text of *Discourses*, and in the *Lives*.

	Maxims	*Text*	*Lives*
1.	World unified as to Trade	P. 14, para. ii	Vol. I, p. 352
2.	Any loss of trade affects whole world	None	*Ibid.*
3.	No trade is unprofitable to public because no private trader will continue an unprofitable trade	None	*Ibid.*
4.	No trade regulation can benefit the public ..	Not present in same context	None
5.	Trade cannot be regulated, or if it can then only in a destructive way	15, ii; etc.	None
6.	Money is a merchandise;	13, ii	III, 168
	of which there may be a surplus as well as a deficit	Contradicted by Postscript	None
7.	There is always just enough money	Postscript, etc.	I, 352–3 III, 168
8.	"No man shall be richer for the making much Money . . . but as he buys it for an equivalent price"	?	?
9.	Free coinage benefits a few at the cost of the many	18, v; etc.	III, 167
10.	Debasing the coin is a fraud	Postscript (4), iii	III, 168
11.	Debasing by fineness or weight are the same ..	Postscript (4), iii	None
12.	Exchange and cash are the same except for the cost of carriage..	17, iv	None
13.	Money exported in trade increases wealth of nation;	13, ii	None
	money spent in war, and	22, iii; Ps (5), iii	None
	in payments abroad, decreases it ..	None	None
14.	"All favour to one Trade or Interest . . . is an abuse, and Cuts so much of Profit from the Publick"	None	None

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[1] If the revision takes place, it would be well to verify the attribution of *A Discourse of the Poor*, 1753, published posthumously under Roger North's name, but based very largely on Sir Dudley's ideas, set forth in a manuscript to have been published as a sequel to the *Discourses* (Add. Mss., 32,512, ff. 124b–130b).

The Factor and Goods Markets

By Ralph Turvey and Hans Brems

In recent years a number of connected aspects of income theory have been discussed separately. Professor Goodwin[1] has shown how the Keynesian multiplier can be generalised to what he calls a matrix multiplier. Professor Metzler[2] has explained how the different ways in which *ex post* equality of Saving and Investment is brought about are related to the different lags in the circular flow of income. A Danish writer, I. Grünbaum,[3] has pointed out some important inadequacies of analysis in terms of Saving and Investment. The present paper endeavours to show how all these contributions fit together.[4]

I

In macro-economic analysis we consolidate groups of producers, income-recipients and so on into sectors which we treat as units. The transactions internal to sectors are ignored, and only those between sectors are taken into account. The fewer the sectors the simpler will the analysis be, and the simplest macro-economic model possible is one consisting of two sectors only. Here we shall aim at the maximum simplicity.

The most obvious division to make is then that between producers and consumers. We shall therefore consider a closed economy where there is neither government revenue nor expenditure, consisting of a "Business" sector and a "Factor" or "Household" sector. In this system, apart from financial transactions which we shall not consider, two kinds of transactions take place. Firstly, Households buy Goods from Business (Consumption) and secondly Business makes payments to Households (Personal Income) in the form of wages, salaries, rent, interest and dividends. Since there is but one Household sector we lump all these payments together and for convenience call them "purchase" of Factors from Households. Thus, ignoring the capital market, there are two markets: a Goods Market and a Factor Market.[1]

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[1] "The Multiplier as Matrix" (*Economic Journal*, December, 1949).

[2] "Three Lags in the Circular Flow of Income" (*Income, Employment and Public Policy*).

[3] "Inkongruente Forventninger og Begrebet Monetaer Ligevaegt" (*Nationaløkonomisk Tidsskrift*, 1945).

[4] We are indebted to Professor Meade, Mr. Day and Mr. Graaf for helpful discussion on a number of points.

The relation of Factor Sales and Goods Sales to national income is shown by the following definitional equations:

Personal Income = Sale of Factors = Purchase of Factors.
Consumption = Purchase of Goods = Sale of Goods.
Gross National Product = Gross Investment + Consumption = Personal Income + Gross Business Saving.

Using the symbols we shall employ these can be rewritten:

$$\text{Personal Income} = S_f = P_f \quad \ldots\ldots\ldots\ldots(1)$$

$$\text{Consumption} = P_g = S_g \quad \ldots\ldots\ldots\ldots(2)$$

$$Y = I + P_g = S_f + \text{Gross Business Saving} \ldots.(3)$$

In order to explain the determination of income we need a Factor Purchase Function and a Goods Purchase (Consumption) Function. We shall assume that both are linear in order to be able to present our model algebraically as well as geometrically. For the Consumption Function we write:

$$P_g = H + hS_f \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(4)$$

where H and h are constants, the latter being Households' marginal propensity to consume with respect to Personal Income.

For the Factor Purchase Function we write:

$$P_f = B + bY \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(5)$$

where B and b are constants, the latter being the marginal propensity of Business to purchase Factors with respect to value of output. Its meaning may be best explained by an imaginary example: Suppose that when Y rises by £100 an extra £50 has to be spent on labour to provide the necessary increase in output and that the increase in profit (fall in loss) of £50 is reflected in an increase in dividend payments of £30, then b is 0·8.[2]

b is *not* the marginal cost of production of consumption goods to the Business sector as a whole (or to the final producer) since it refers to money value of output, not to a physical unit of product. Furthermore, even for a given price and output, £b is not the marginal cost of that quantity of goods which is priced at £1 for two reasons. Firstly it includes marginal dividend payments. Secondly if advertising expenditure is related to sales[1] b will include the Factor Purchase corresponding to marginal advertising expenditure.

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[1] In terms of Leontief's system we are considering a two-row two-column matrix. Much of what follows is a special case of Professor Goodwin's matrix where $n = 2$ and we have tried to make the presentation intelligible to non-mathematicians.

[2] In other words $(1 - b)$ is the marginal propensity of the Business sector to save with respect to gross national income. Its magnitude depends upon the marginal relation of profits to value of output and the marginal relation of dividend payments to profits.

B includes all those Purchases of Factors which do not vary with output. It thus consists of the payment by Business to Households of rent, interest and overhead wages and salaries. Since the analysis is short-run, B is constant.

Three problems arise at this point, concerning the Purchase functions. The first is that it is extremely unlikely that they can be represented by straight lines, b, for example will probably vary with output. For example, if output is very low so that Business is incurring losses, a rise in output may, since it reduces losses rather than increases profits, lead to no increase in dividends, while at a high level of output dividends may be considerably increased. It remains true, however, that any stretch can be approximated by a linear function, and in any case we have assumed linearity only to aid in exposition.[2]

Secondly we have the aggregation problem. In order to derive a determinate consumption function for Households as a whole we must assume either that the distribution of Income between them is constant or is a function of the level of Personal Income or that all Households have the same marginal propensity to consume, h. Analogous assumptions have to be made with regard to the purchase functions of Businesses.[3]

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[1] Recent surveys reveal a strong tendency for advertising expenditure to bear a fixed relation to sales in many industries. Cf. Roy W. Jastram: "Advertising Outlays under Oligopoly" (*Review of Economics and Statistics*, May 1949).

[2] Straight-line functions may be kinked. It is reasonable, for example, to assume that dividends equal half profits but unreasonable to assume that when losses are being made shareholders pay money to their firm!

[3] In this case the problem is more complicated, since Businesses not only buy Factors from Households but also buy one-another's products. Two simple solutions may be mentioned here:

(*a*) The marginal propensity to save of all Businesses is assumed to be zero so that if Y increases by x Factor Purchases increase by x whatever its composition as between different products. If we understand Goodwin rightly he has shown (*op. cit.*, pp. 541–43) that this is implicitly done in the Keynesian system. It has the disadvantage of ignoring "the phenomena of internal financing, of the failure to disburse earnings, of heavy fixed charges and of the payment of dividends above current earnings" (p. 543).

(*b*) The marginal propensity of any Business to purchase Factors or any raw material is assumed to be the same as that of any other Business. It is difficult to conceive of a system fulfilling this condition as consisting of anything other than a number of exactly similar firms all producing the same good. Thus this "solution" of the problem amounts to assuming it away by postulating a one-commodity world.

Thirdly the values of b and h will depend on the proportions in which an increment of national income is composed of price increase and quantity increase. We shall assume unchanging prices, so that our model describes a Kalecki-like world where marginal costs and gross profit margins are alike constant and our multiplier is a " quantity multiplier " with constant prices.[1]

Having made these reservations we now turn to the static solution of our model. Starting from:

$$Y = I + P_g \quad \ldots\ldots(3)$$

we substitute for P_g according to (4), getting:

$$Y = I + H + hS_f$$

Since, from (1), $S_f = P_f$ we can substitute (5) into this, giving

$$Y = I + H + hB + hbY$$

so

$$Y = \frac{I + H + hB}{1 - hb} \quad \ldots\ldots(6)$$

This tells us that the level of gross national product depends on two sets of factors: the " injections " of the two sectors (I, B and H) and the marginal propensities to spend of the two sectors (b and h).

It will help in understanding this system if we contrast it with the customary Keynesian-type formula:

$$Y = \frac{I + K}{1 - c} \quad \ldots\ldots(7)$$

where Y and I are, as before, Gross National Product and Gross Investment respectively, while:

$$\text{Consumption} = K + cY$$

so that K is the constant term in the Keynesian consumption function and c is the marginal propensity to consume with respect to Gross National Product. Because:

$$K = H + hB \quad \ldots\ldots(8)$$

and

$$c = hb \quad \ldots\ldots(9)$$

(6) and (7) give the same result. (8) shows that the constant term in the Keynesian consumption function is composed of two parts: the constant term in our Goods Purchase function and the constant term in the Factor Purchase function multiplied by the marginal propensity to consume

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[1] The theory of open inflation is largely the study of " price multipliers " with constant quantities.

with respect to Personal Income. (9) shows that the latter marginal propensity is only the same as the marginal propensity to consume with respect to Gross National Income when the marginal propensity to save of the Business sector is zero.

Both of these differences derive from our distinction between the Factor and Goods markets from which follows our separation of the two Purchase functions and the corresponding separation of Household and Business saving. We believe that all this makes income theory along the lines of our model more understandable since the connection between the macro-economic functions and the theory of the firm is made much more evident than it is in the Keynesian approach. Furthermore, we believe that our two-sector model is of definite analytical value as we shall proceed to show by considering three problems.

II

Firstly, consider the direct part[1] in income-generation played by rent, interest payments and other overheads. This comes out clearly in equation (6), since they all enter into B. Let us suppose that the level of rents is revised upwards against Business. Unless the effect is to cause some firms to cease activity, B will rise correspondingly. For any given Gross National Product this will mean an equal fall in the profits of Business and consequently a reduction in dividends (a fall in b).[2] It may well be, however, that the dividends corresponding to that level are reduced by a smaller amount so that there is a net expansionary effect: the fall in b does not quite offset the rise in B, and consequently the equilibrium level of National Income is increased.

This sort of consideration has some relevance to problems of growth. If Gross Investment exceeds maintenance and replacement, B will expand over time even if Gross Investment is constant, for rents will rise and the new capacity will have overhead labour costs and may have to bear some interest charges. Whether or not b will fall sufficiently to compensate is an open question, depending upon several factors such as the capital intensity of the new investment, the debenture-equity ratio and the rate of interest.

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[1] I.e., as distinct from their effect on the inducement to invest.

[2] b may fall not only because of a decrease in the profits-output function but also because the dividend-profit function will probably fall; the rise in overhead costs may lead firms to accumulate more reserves than they would otherwise have done.

III

Equation (8) shows that even if Consumption be a constant proportion of Personal Income ($H = 0$) the Keynesian Consumption function relating Consumption to Gross National Income must necessarily have a constant term equal to hB. Consideration of the items composing B indicates that this constant term is of very considerable magnitude. Its existence is important in the analysis of the effects of a general wage change as we shall now briefly demonstrate.

Let us suppose that all wage rates and the prices of all goods currently produced fall by 10 per cent. Gross Investment will then fall by 10 per cent. but B will fall by a much smaller percentage since only a minor part of it consists of wage payments and in the short run interest charges and rents can be assumed constant. Consequently the multiplicand, $I + hB$[1] will fall by less than 10 per cent. With a constant multiplier National Income will also fall by less than 10 per cent. in monetary terms and thus rise in real terms. We conclude that even when there is no money illusion on the part of Households, when real Investment remains unchanged and h does not alter, a general wage cut will expand employment in a closed economy.[2]

IV

In the third application of our model we turn to dynamic analysis and show that the separation of the Factor and Goods markets throws some light upon the Saving-Investment problem and the time sequence of a multiplier effect. We shall use the period approach, so that all magnitudes must be interpreted *ex ante* and *ex post*,[3] and we shall assume the plan revision periods of Business and Households to be coterminous and coincident.

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[1] H is assumed to be zero. This means that it is indifferent whether we take h to refer to real or money income and therefore that the value of h will not be affected by the price fall. It is possible that h will fall however.

[2] Tobin in his "Money Wage Rates and Employment" (*The New Economics*, pp. 583–85) and Witteveen in his *Loonshoogte en Werkgelegenheid* (pp. 43–45) have shown that a constant money term in the Keynesian Consumption function will produce an increase in employment when wages fall, but both authors seem to attribute this possibility only to money illusion on the part of Households.

[3] That we talk of magnitudes and not schedules as regards, for example, *ex ante* purchases means that we are using what Lindahl calls the "disequilibrium method" (*Studies in the Theory of Money and Capital*, p. 60). For a diagrammatic exposition of the equilibrium and disequilibrium methods with reference to the Goods Market see Turvey: "A Further Note on the Inflationary Gap" (*Ekonomisk Tidskrift*, 1949). For a discussion of the length of the period see Section I of Brems: "Om Stockholmskolens Begreber og Metoder" (*Ekonomisk Tidskrift*, 1944).

The Factor Purchase Function now gives the Factor Purchases planned for a period as a function of the value of the output planned for that period. This is equal to the sum of the planned Investment and the expected Consumption sales for that period. The Goods Purchase function relates planned Consumption to expected Personal Income. There are two equilibrium conditions, one for each market. Planned Factor Purchase must equal expected Factor Sales and planned Purchase of Goods must equal expected Sale of Goods.

Now the requirement for equilibrium is usually stated as the single condition that *ex ante* Investment must equal *ex ante* Saving. What is the connection between this and our two conditions? To answer this we must define the difference between (Gross) Investment and (Gross) Saving in terms of our system:

$$\begin{aligned}\text{Investment} &= \text{that part of Gross National Product not sold to Households}\\ &= Y - S_g\\ \text{Saving} &= \text{Household Saving} + \text{Business Saving}\\ &= S_f - P_g + Y - P_f\end{aligned}$$

so: Investment − Saving

$$\begin{aligned}&= Y - S_g - S_f + P_g - Y + P_f\\ &= (P_f - S_f) + (P_g - S_g) \qquad (10)\end{aligned}$$

which is true both *ex ante* and *ex post*.[1] Using the terminology suggested by Bent Hansen[2] we can rewrite this as:

$$\text{Investment} - \text{Saving} = \text{Factor Gap} + \text{Goods Gap} \qquad (11)$$

Now our equilibrium conditions mean that both Gaps must be zero *ex ante*. If they are so then *ex ante* Investment will equal *ex ante* Saving. On the other hand, *ex ante* equality of Investment and Saving only means that the *sum* of the Gaps is zero. It is thus evident that the customary condition is necessary, but not sufficient. Period analysis can only be carried on in terms of Investment and Saving if it is assumed either that the Factor Gap is always zero or that the Goods Gap is always zero.[1]

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[1] Equation (10) and much of the argument immediately following it is taken from Grünbaum's excellent article (*loc. cit.*).

[2] In a work on the theory of inflation which is not yet published. In the first few chapters Hansen has developed and applied Grünbaum's ideas to the analysis of suppressed inflation. The present paper is therefore confined to the case where both Factor and Goods Markets are buyers' markets and we thus assume throughout that purchase plans are realised, i.e., that P_f and P_g are the same *ex post* as *ex ante*. This obviously excludes suppressed inflation from our analysis.

This point is, of course, only one aspect of the general problem of aggregation for, to take an example, a Goods Gap of zero is quite consistent with the existence of an excess supply of trombones and an equal excess demand for ear plugs. If there are n sectors there will be n markets and n equilibrium conditions, and to concentrate on only two of them is a gross simplification. It is nevertheless true, however, that a macro-economic model must contain *at least* two sectors[2] and therefore at least two equilibrium conditions, and it seems reasonable to take the division of the economy into producers and consumers as being the most important of the many possible divisions, at least for short-run analysis.

Returning to the relation between *ex ante* Investment minus Saving and the two Gaps, we must point out that if *both* the expected Sale of Goods and the expected Sale of Factors are above (below) their equilibrium level Saving *ex ante* will exceed (be less than) *ex ante* Investment.[3] In spite of this, however, as some simple examples will show, analysis in terms of Saving and Investment is inadequate. Besides our assumption that purchase plans are always realised, we shall postulate " Robertsonian " Sales expectations (i.e., the Sales expected for any period equal the *ex post* Sales of the preceding period) and assume that production equals expected Sales of Goods thus ignoring the effects of inventory changes.[4]

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[1] The reader will observe that some of the points in the following analysis have also been made by Professor Hansen in " The Robertsonian and Swedish systems of period analysis " (*Review of Economics and Statistics*, February 1950).

[2] Since transactions internal to a sector are ignored, there would be nothing to analyse in a one-sector model.

[3] We can show this as follows :

Let: $\triangle S_f$ = expected S_f minus equilibrium S_f
$\triangle P_f$ = planned P_f minus equilibrium P_f.
$\triangle S_g$ = expected S_g minus equilibrium S_g.
$\triangle P_g$ = planned P_g minus equilibrium P_g.

Since in equilibrium both Gaps are zero, we can rewrite (10) as :

$$\text{Investment} - \text{Saving} = (\triangle P_f - \triangle S_f) + (\triangle P_g - \triangle S_g) \quad \ldots\ldots\ldots\ldots(12)$$

From (4) and (5) we get :

$$\triangle P_g = h\triangle S_f$$
$$\triangle P_f = b\triangle S_g \qquad \text{(Investment being given),}$$

and substitution into (12) gives :

$$\begin{aligned}\text{Investment} - \text{Saving} &= (b\triangle S_g - \triangle S_f) + (h\triangle S_f - \triangle S_g)\\ &= (b-1)\triangle S_g + (h-1)\triangle S_f\end{aligned}$$

Since b and h will normally both be less than unity, this shows that if both $\triangle S_g$ and $\triangle S_f$ are negative Investment must exceed Saving *ex ante* and vice versa.

[4] On this matter see Metzler's article on inventory cycles (*Review of Economic Statistics*, 1941) where, however, only the Goods Market is considered.

Suppose that Investment and Saving are equal *ex ante*, but that there is a positive Goods Gap and an (equal) negative Factor Gap. Then *ex post*, Business will have sold more than expected, while Personal Income will be less than expected. In the following period, therefore, planned Purchase of Goods will fall while Sales expected will rise so that a negative Goods Gap may appear. Similarly the Factor Gap may become positive, though it need not necessarily be equal in absolute value to the Goods Gap. Thus the initial equality of Investment and Saving means very little.[1]

Again, suppose that expected Sales of both Goods and Factors are above their equilibrium levels so that Saving exceeds Investment *ex ante*. This situation is quite compatible with the presence of a positive Goods Gap (smaller in absolute terms than the negative Factor Gap). This means that Sales of Goods *ex post* must exceed the expectations of Business so that their Sales expectations and production planned for the following period will be revised upwards. Thus production will increase, although it should be reduced in order to reach equilibrium.[2]

The connection between the Factor and Goods Gaps on the one hand and Saving and Investment on the other hand can be further examined by discussing a multiplier process, and to do this we shall use a diagram. In order to explain the diagram let us temporarily ignore the dashed lines and consider an initial equilibrium position where $Y = OZ$ and the diagram gives the geometric solution of equations (1) to (5).

Let us start with the S.W. quadrant. Planned production being OZ the Factor Purchase Function shows that planned Factor Purchase is OX. Since we are assuming full equilibrium, expected Factor Sales will also equal OX. With an expected Personal Income of OX the Consumption Function in the N.E. quadrant shows that planned Purchase of Goods is OV. Adding planned Investment, I, we get a total of OZ which is equal to planned production.

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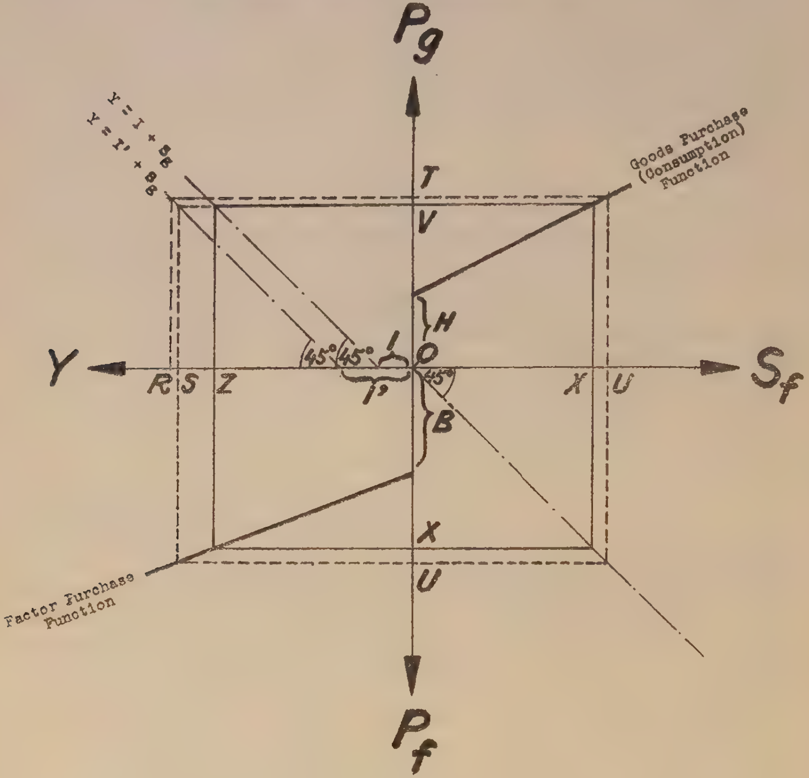
[1] For other reasons why *ex ante* equality may not mean stability see *inter alia* pp. 141–42 of Lutz : "The Outcome of the Saving Investment Discussion" (reprinted in *Readings in Business Cycle Theory* to which the page reference relates), Grünbaum (*op. cit.*, section V) and the last part of Schneider : "Opsparing og Investering i et Lukket Samfund" (*National-Økonomisk Tidsskrift*, 1942).

[2] Equilibrium will be reached in a series of oscillations of a length of two periods. This can be seen by carrying on the analysis verbally, by using the diagrammatic technique shown below, or by constructing a difference equation. Goodwin has shown that with many sectors, each with a one-period lag, many different patterns of movement can occur.

Now suppose that in period 1 planned Investment increases from I to I' so that the curve in the N.W. quadrant (showing planned production as equal to expected Sales to Households plus planned Investment) shifts to the left by $(I' - I)$. Assuming that the Businesses which wish to increase Investment are not the same as the Businesses which produce the necessary capital goods so that the rise in Investment demand is unexpected, a Goods Gap will arise of SZ and this is equal to the excess of *ex ante* Investment over Saving since planned Factor Purchase and expected Factor Sales are both OX. *Ex post* the Goods Gap will be closed and Investment made equal to Saving by unintended disinvestment (unexpected Sales to Investing Businesses) of SZ.



In period 2 planned production will be OS, since we are assuming Robertsonian expectations and neglecting stock replacement. Planned Factor Purchase will therefore be OU. Expected Factor Sales, however, is only OX (equal to the Personal Income received in period 1) so there will be a Factor Gap of XU. Since expected Personal Income is unchanged at OX, planned Consumption will be unchanged at OV and adding to this the same planned Investment of *I* gives a total of OS equal to planned production. Thus in period 2 the Goods Gap is zero and there is a Factor Gap of XU equal to the *ex ante* excess of Investment over Saving. *Ex post* the Factor Gap will be closed and Saving made equal to Investment by an unexpected Personal Income increase (unintended Household Saving) of XU.

The argument continues along the same lines[1] for succeeding periods until full equilibrium is reached—theoretically after an infinite number of periods.

Since period 3 is qualitatively the same as period 1 it appears that the " income generation period " equals two of our periods. The former, however, is customarily subdivided into three lags :[2]

(i) The Income-Spending Lag
(ii) The Spending-Production Lag
(iii) The Production-Income Lag.

Metzler has shown[3] that (i) is the Robertsonian lag and that (ii) is the Lundbergian lag. But (i) is also equivalent to the plan revision period of Households and (ii) to the plan revision period of Business, while in our system the lag (iii) is zero because we have assumed that the Factor Purchase corresponding to the production of any period is made during that period.

Now the assumption of correct expectations gives the same result as the assumption of a zero lag. Thus we can say that our multiplier is Robertsonian under the special assumption that Business anticipates Goods Sales correctly, in which case the Goods Gap is always zero and the excess of Investment over Saving *ex ante* equals the Factor Gap. *Ex post* equality is then brought about by unintended saving.[4] Alternatively, our multiplier is Lundbergian[5] under the special assumption that Households always anticipate their income correctly so that the Factor Gap is always zero and the excess of Investment over Saving

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[1] Thus in period 3 there will be a Goods Gap of *RS*.

[2] Cf. Metzler : " Three Lags in the Circular Flow of Income " (*Income, Employment and Public Policy*) and Turvey : " The Multiplier " (*Economica*, 1948, p. 266) where the relationship of the income-generation period to the income-velocity of active cash balances is discussed.

[3] *Op. cit.*, section III.

[4] Cf. Metzler : *op. cit.*, p. 18.

[5] We have, however, not brought in stock replacement as Lundberg does. Cf. Metzler : *op. cit.*, p. 19.

ex ante equals the Goods Gap. *Ex post* equality is then brought about by unintended disinvestment.

V

What we have done in this paper is to follow a suggestion made by Professor Ohlin in his review of Professor Lindahl's *Studies in the Theory of Money and Capital.*[1] It has been shown by Professor Lindahl[2] and by Professor Palander[3] that a difference between *ex ante* Investment and *ex ante* Saving can only exist if buyers' and sellers' expectations with regard to the purchase both of goods and factors of production are divergent. This led Professor Ohlin to say:

> " The method of regarding a difference between total planned saving and total planned new investment as the factor generating processes of expansion and contraction is thus for several reasons not particularly practical. It is simpler and better to ask: How do purchases for consumption purposes and purchases for business purposes develop from one period to another ? "[4]

We have constructed a simple model along the lines suggested by Ohlin as an alternative to the usual Saving-Investment approach. In doing so we have endeavoured to build upon the contributions of Grünbaum, Goodwin, Metzler, Hansen and others, as cited above, applying the analysis to three problems.

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[1] " Professor Lindahl om Dynamisk Teori " (*Ekonomisk Tidskrift*, 1941).

[2] *Studies* . . . . , p. 127.

[3] In his review of Myrdal (*Ekonomisk Tidskrift*, 1941, fn. pp. 124–26). Neither he nor Lindahl, however, went on to draw Grünbaum's conclusions.

[4] *Op. cit.*, p. 181.

The Theory of Effort and Welfare Economics

By A. E. C. Hare

1. Modern value theory is a demand theory. Unlike the earlier theories of the classical economists who were ever aware of the struggles of man to wring a living from nature, value theory now lays little emphasis on the sacrifices involved in work and approaches the subject from the starting point of the consumer engaged in maximising his satisfactions. Modern welfare economics likewise concentrates wholly on the economic welfare derived from consumption. Anything which, *ceteris paribus*, increases satisfactions, that is, increases the volume of goods and services for consumption, whether by better allocation of resources or improved technique, increases economic welfare. This emphasis on satisfactions has involved the almost complete neglect of dissatisfactions and the gradual disappearance from economic literature of such terms as "disutility" and "real cost".

The reason for this state of affairs, so far as welfare theory is concerned, is the assumption that a balance is always struck by the individual at the margin between effort and reward, and that it is not therefore possible that an increase in satisfactions may be more than counterbalanced by the dissatisfactions involved in obtaining them. The validity of this assumption and the place of dissatisfactions in economic theory stand in need of a re-examination. This article is an attempt to contribute towards this, first, by re-examining the dissatisfactions which arise from work, secondly, by pointing out the bearing of these dissatisfactions on welfare economics, and, thirdly, by indicating their bearing on industrial relations.

(*a*) THE THEORY OF EFFORT

2. Economics has very little to say about the disutility of work. In the first place the elementary observation is made that work carried on beyond a certain point causes

dissatisfaction ; and that as work is prolonged its disutility tends to increase with increasing rapidity. Secondly, reference is usually made to Jevons' Theory of Labour that the disutility of work is a function of two variables, the speed of work (or its intensity as Jevons called it) and its duration.[1] The theory of effort has remained virtually without change of content at the point where Jevons left it. The only addition is the recognition, gradually made more explicit, that the quality of work also affects its disutility and that in discussing the relation of disutility to speed and duration an assumption must be made that quality remains constant.[2]

Deductive methods alone probably could not take the theory much further, but during the last thirty years industrial psychologists have made exhaustive inductive studies of the factors affecting industrial fatigue.[3] These studies have shown that the disutility of work depends on a multitude of factors other than speed and duration. There is, first, the environment under which the work is done, e.g., the physical conditions of light, temperature, ventilation and noise, as well as the human relations at the work place. Secondly, given the environment, the disutility of work depends upon the way the work is done, e.g., its speed, duration, the accuracy required to produce good work, the care needed to avoid waste of power and materials and to avoid accidents, the frequency of rest pauses and their distribution during working hours, the length of time a worker has practised the job and the size of the batch of work presented to the worker, to mention only a few of the most important. For some purposes it is convenient to class together a number of these, i.e., the accuracy needed to avoid spoilt work, the attention needed to ensure quality, the care needed to avoid waste of power and materials and to avoid accidents. All these efforts are so similar that they may conveniently be classed together as "concentration". There are, then, three major factors, speed, duration and concentration, on which the disutility of work depends, though there are many others which cannot be easily categorised.[4]

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[1] Jevons, W. S.: *Theory of Political Economy*, 2nd Edition, 1879, p. 184.

[2] Pigou, A. C.: *The Economics of Stationary States*, 1935, p. 34. Sargant Florence, P.: *The Use of Factory Statistics in the Investigation of Industrial Fatigue*, 1918, p. 36.

[3] The main *locus* of these studies is the Reports of the Industrial Health Research Board, 1919–1939.

[4] These three categories are not wholly independent variables. In particular, if speed increases, some sorts of concentration will also increase, though not necessarily in proportion.

3. In the theory of price we assume that the consumer always aims to lay out his income in the way which will maximise the satisfaction he derives from it. Similarly, we may assume that a worker faced with a given task always aims to lay out his expenditure of effort in the way which will minimise the disutility he incurs from doing it.

Let us imagine a person whom we will call a Domestic Worker who works in his own home on materials provided by an agent. The domestic worker has all the conditions of work under his own control ; he can start and stop work when he pleases, work at what speed he finds best, take rest pauses and meals at will, and devote whatever concentration he pleases to the task. Let us further assume that he can sell his product to the agent at market prices which his own actions cannot modify. He is then in a position somewhat resembling that of a firm working under conditions of perfect competition. We are not concerned here with the factors which influence his decision how much to produce, but with the fact that, however much he decides to make, he will endeavour to do it in such a way that his expenditure of effort per unit of output for that amount is at a minimum.

It is characteristic of the functions relating speed, duration and concentration to the disutility of work that, after a point, they all take the form in which successive increments in any one of them will involve an increasing marginal disutility of work. The worker will therefore achieve a minimum effort cost, when he has so adjusted his expenditure of effort amongst the various ways of using it, the speed of work, its duration and concentration, that the ratio of effort to output at the margin is the same for all forms of expenditure of effort. Thus, a domestic worker will endeavour to lay out his effort between the alternatives of working faster or longer or with more concentration in such a way that, if he decides to increase his output, he will be indifferent whether he works slightly faster or slightly longer or with slightly greater concentration. When he has achieved this, he has reached a position at which his effort cost per unit of output is at a minimum.

Since the functions relating speed, duration and concentration to disutility are different in shape, in particular the graph of the function relating duration of work to disutility rising very steeply as the hours of work approach the physiological limit, each level of effort will require a different distribution between alternative ways of using it, if a position of minimum effort cost is to be maintained. Thus for each level of effort, there will be a different optimum distribution of effort between alternative ways of using it.

Not only will each level of effort require a different way of working, but each individual worker will also differ in this respect. Some are slow workers who find speed and concentration more trying than long hours, others will prefer to work short hours at high speed and concentration. Thus the position of minimum effort cost will differ from individual to individual.[1]

4. It may be objected that this theory relates to conditions which are now very uncommon. The main characteristic of industrial work is that it is carried on under conditions which are very largely not under the workers' control. "Who shall work and how long and how hard and on what jobs and under what conditions is determined mainly over the heads of the workers themselves".[2] Though it be true that some of these conditions are partly determined by the workers, they are influenced only through collective bargaining; and collective bargaining can, at the best, only achieve what the average worker wants. It does not as a rule increase the possibility of a particular individual controlling his working conditions. It follows that in industrial work the ability of the individual worker to vary his expenditure of effort in different directions is very severely limited. We shall return later to the question of what the degree of limitation depends upon.

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[1] Because the terminology of the subject is not yet settled, it is well to note that the terms "disutility" and "dissatisfaction" are here used interchangeably to express all the elements in work, whether physical or mental, which tend to make it more and more difficult to continue working after a certain point has been reached. The term "unpleasantness" may then usefully be reserved for the comparison of different tasks, quite apart from whether any work has been performed on them.

The disutility of working is determined for each individual by his physical and mental make-up and is *involuntary*, that is, it is not under his control. The term "effort", on the other hand, is used to indicate the factor which overcomes the disutility of working and which is *volitional*, that is, more or less of it can be applied to any task. If the disutility of working increases, provided effort increases as fast, work will be continued.

The term "fatigue" used by industrial psychologists was originally used to include all the factors which led to a falling off of output, this being taken as the objective measure of fatigue. Psychologists, however, soon found that output and the subjective feelings of fatigue were not related in any simple way. Output might remain stable whilst subjective fatigue increased greatly. This phenomenon can only be explained on the assumption that greater effort is exerted. The term fatigue in its broad original sense is therefore related to economic terminology in the sense that it includes the combined effects of the disutility of work and of the effort used to overcome it.

[2] Sargant Florence, P.: *op. cit.*, p. 34.

This fact, that ability to adjust expenditure of effort is limited by the industrial environment, does not, however, mean that there is no tendency for workmen to attempt to minimise effort cost. It only means that in so far as obstructions exist which prevent the achievement of equi-marginal ratios, the effort cost per unit of output will be raised. Thus, the greater the degree of industrial organisation, the higher the mechanisation, the greater the team work and consequently the greater the discipline required, *ceteris paribus*, the greater the effort cost of a given output.[1] It also follows that the degree of effort on the part of the worker remaining the same, the greater the extent of control exerted over the individual workman, the lower the output.

5. What evidence is there that in fact this tendency to minimisation of effort cost takes place? The answer to this question is to be found in the work of industrial psychologists. The original problem which chiefly occupied the attention of industrial psychologists was the relation of hours of work to output. Before 1914 this relationship had been the subject of study by isolated investigators, but during the war of 1914–18, when munition workers were working excessively long hours, a number of systematic investigations were made by the Health of Munition Workers Committee.[2]

The conclusions of the many very detailed studies of the effects of changes in the hours of labour and the resultant changes in the speed and concentration of work carried out by this body cannot be summarised here. However, the conclusions of Vernon, one of the earliest and most experienced investigators working for the Committee, summarising the results of his many different investigations are sufficient evidence. Writing in 1921 he concluded that there is a "law of maximum production with minimum effort . . . in respect of their weekly output, their choice of rest pauses and in other ways, the workers unconsciously adopt habits which tend towards the greatest possible output with the least possible exertion on their part".[3] Later he states the law in the following terms. "Experienced industrial workers unconsciously adopt habits of work which tend to the production of a maximum of output with the minimum of effort."[1] Vernon was trained as a Doctor of Medicine and there is no evidence that he had any knowledge of economic theory, but from detailed studies of workmen's behaviour he was able to deduce what is essentially an economic law.

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[1] The *ceteris paribus* clause here includes a great deal. Mechanisation may make work so much easier that it far outweighs losses caused by lack of adjustment.

[2] Later to become the Industrial Fatigue Research Board and later still the Industrial Health Research Board, by which title it is now known.

[3] Vernon, H. M.: *Industrial Fatigue and Efficiency*, 1921, p. 26.

Vernon's Law, or the Law of Minimisation of Effort, as economists might prefer to call it, throws a great deal of light on an aspect of workmen's behaviour which cannot easily be explained otherwise. The significant point which emerged from all the early investigators' studies is that up to a point a reduction of hours causes a more than compensatory increase in output per hour amongst piece workers who are able to vary the speed of their work. An economist faced with a request for an economic explanation of this phenomenon, in the absence of a knowledge of the law of minimisation of effort, would be forced to seek an explanation in an increased incentive to work, bringing about greater effort. Increased leisure from shorter hours and the complementarity of leisure and income might be put forward as the reason for the increase in output per hour. Whilst an increase in incentives of this nature may take place, it is clear from the law of minimisation of effort that what happens is a readjustment in the distribution of effort so that there is a reduction in the effort cost per unit of output. No explanation based on incentives alone is sufficient.

6. Let us now take a broader view of the problem. In formulating the law of minimisation of effort we have pushed economic analysis back to a remoter level, mathematically another dimension, than that at which it is usually conducted. Normally the economist is concerned only with the reactions of human beings to changes in market prices ; that is, given a person's preferences, the economist describes how the individual in endeavouring to maximise his satisfactions will react to the prices which face him in the market. These might be called *external* adjustments because they relate to the activities of the individual vis à vis the market. But the further process of *internal* adjustment by which a person, once he has made his choice on the market and completed

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[1] *Op. cit.*, p. 27.

his purchases, achieves the maximum of satisfaction from his purchases has escaped analysis. Economics has hitherto not attempted to answer the question of what determines the intensity of satisfaction to be derived from a given quantity of a consumable commodity, because this has been assumed to be given and beyond the reach of investigation. This, however, is only true if the individual is capable of consuming a commodity in the best way and thus maximising the satisfactions derived from it. Then we can say nothing general about the level of satisfaction except that it is maximised. If, however, the individual is not thus free to make internal adjustments, the economist can say something about the processes of internal adjustment which are necessary if the individual is to maximise the satisfactions of consumption—and also to minimise the dissatisfactions of work.

Why, then, have economists hitherto ignored these internal processes? The first reason is that economists have been too exclusively occupied with the problems of the consumer and insufficiently aware of the problems of labour. All economists are consumers, but few have ever earned their living by labour under conditions where they were not free to make internal adjustments in the distribution of effort. Secondly, even if economists had been interested in the internal processes of consumption, they had no data. Once the consumer has completed his purchases, the internal processes of consumption are not directly reflected in market prices, except in so far as internal adjustment serves always to maximise the satisfaction derived from consumption and thus to determine preferences in the market, and therefore external adjustments. No price data directly concerning the internal processes are available. Moreover, the consumer is always completely free to maximise his satisfactions by consuming his purchases in what manner he pleases: he may consume them fast or slowly, all at once or intermittently, only at Christmas and Birthdays or on Sundays as well. It is safe, therefore, to assume, as economists have always unconsciously done, that the consumer always consumes in such a way that he maximises the satisfactions derived from a given quantity of a commodity, and the problem on the consumers' side may be ignored.

Matters would, however, have been very different if the seller, through his control of the conditions of sale, had always been able to dictate in what manner the buyer might consume his purchases.[1] If this were the normal state of affairs, economists would long ago have had to investigate the problems of internal adjustment to which it would give rise. This is the position in the case of the sale of labour. The buyer of labour is able to control a very large number of the conditions under which the seller of labour works. The seller of labour cannot therefore freely make internal adjustments, so as to minimise the dissatisfactions involved in the sale. It was indeed the workers' want of ability to make the necessary internal adjustments in the distribution of effort which led to the falling off in the output of munitions in the first World War, and to the consequent investigations which enabled Vernon to formulate his law.

(*b*) Economic Welfare

7. It remains to discuss the bearing of the theory of effort on economic welfare. If economic welfare is to be maximised under conditions of perfect competition, the state of technical knowledge being given, then " the ratio of the marginal utilities of [any] two commodities must be the same for every individual ; the ratio of the marginal costs must be the same for every producing unit : and these ratios must be equal. Exactly similar conditions must hold between factor and product, and factor and factor, as between product and product. Thus, the marginal product of labour in terms of a particular product must equal the marginal disutility of labour in terms of that product ".[2] Perfect competition will normally bring this about, provided there exists, amongst other things which do not concern us, perfect divisibility of commodities as well as of factors. Unless this be the case, perfection of adjustment at the margin is impossible.

The imperfect divisibility of commodities has been discussed in the past at great length. It was one of the earliest objections raised against the marginal theory of value. But this objection was disposed of long ago in great detail by Wicksteed, who pointed out that hire purchase enables large indivisible commodities to be sold in effect in small units, as they are consumed.[1]

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[1] In certain cases, where the seller sells a service and not a commodity, he may be able to influence *when* it is consumed, e.g., electricity, passenger transport, and telephones may be charged for at rates which vary with the time of day at which they are consumed.

[2] Hicks, J. R. : " The Foundations of Welfare Economics ", *Economic Journal*, Vol. XLIX, December, 1939, p. 704.

The corresponding difficulty concerning labour has, however, never been discussed, much less disposed of. The contract for the sale of labour in most industrial occupations takes a form in which, however it is paid, whether by the hour, or piece, the worker is expected to undertake a full week's work if it is offered. Few employers will willingly employ anyone on the understanding that the worker may cease work when he pleases. If there is any unemployment, the worker is usually in a position where he must sell a large quantity of labour or risk not selling any. If he is to have any work at all, he may often have to continue working far past the point at which the wage equals the marginal disutility of labour.

It has already been pointed out, however, that the disutility of work is a function of many variables and if one variable, say the duration of labour, is fixed, this does not mean that the worker is deprived of all power of adjustment ; he can still vary the speed of work or his concentration. Now employers are concerned to maintain output at the highest level. Any falling off in output per head due to adjustments by the worker will at once cause the employer, by means of factory discipline and through his control of the speed of machinery, to endeavour to limit the extent to which workmen can make adjustments in the quantity of work they do. In a factory, all the variables are carefully observed and, so far as possible, brought under control, in order to ensure that at least a minimum quantity of output is produced. In so far as these measures succeed in their purpose, they limit the divisibility of labour and they also prevent the workmen from making the necessary internal adjustments in order to reach the position of minimum effort cost.[2]

The extent to which it is possible for employers to limit the divisibility of labour depends on their ability to control the workers they employ. In most cases, though not in all, this depends in the last resort on the fear of dismissal. In times of much unemployment, the worker will be unwilling to risk dismissal and consequently the extent to which he can make adjustments will be very limited. But as unemployment diminishes, methods not previously open to the worker become available by which both the divisibility of labour is increased and the minimum effort cost of labour is more nearly approached. Absenteeism is obviously a method of changing the duration of labour. Lateness in starting work and stopping work early are other methods which achieve the same result. In wastefulness and spoilt work lie methods of adjusting concentration. These phenomena are a smaller problem to the employer when there is unemployment, but appear increasingly as full employment is reached and the risk of dismissal diminishes.

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[1] Wicksteed, P. H. : *The Common Sense of Political Economy*, Ed. by L. Robbins, 1935, p. 104.

[2] It has been pointed out to me that the use of the term " divisibility of labour " is liable to misunderstanding because of its similarity with the term " division of labour ". However, because I am unable to find any satisfactory alternative and because the term " divisibility ", or rather " indivisibility ", is already well established in regard to factors of production, I have decided to adhere to *divisibility*.

We may conclude that as full employment is approached, so will the divisibility of labour increase, and there will be a closer correspondence at the margin between effort and reward. Economic welfare will therefore be increased. At the same time, full employment will enable the worker to make better internal adjustment in his expenditure of effort, so that the effort cost per unit of output is reduced. Economic welfare will be further increased because the same output will be achieved with less effort. Labour will be more economically used.

8. There are, then, two possible sources of failure of adjustment which may result in a departure from the position of maximum economic welfare ; lack of external adjustment, i.e., want of correspondence at the margin between the disutility of labour and the price to be obtained for it, and lack of internal adjustment, i.e., inability on the part of the worker, once he has decided how much labour to sell, to distribute his expenditure of effort freely between the different forms of using it ; speed, duration and concentration.

It may seem that, since industrial discipline which limits the divisibility of labour also necessarily curtails the workers' ability to reach a position of minimum effort cost, there is no point in making the distinction between external and internal adjustments. But the two are analytically distinct and the injury caused to welfare is of a different kind. The first prevents adjustment at the margin, the second raises the effort cost of output.

The distinction is clearly seen if we take the four possible combinations of perfect or imperfect external or internal adjustment.

In the first place, we may have perfect external and internal adjustment. This is the position of what we have called the Domestic Worker, who can work in what way he pleases and sell as much as he likes. It is also the usual position of the consumer who can buy as much as he likes of various commodities and can consume them in what way he pleases. Economic welfare is at a maximum.

Secondly, there may be perfect external adjustment, but imperfect internal adjustment. This is a highly unusual case but an illuminating one. It would arise if a domestic worker's hours, rest pauses and other conditions were regulated by law, but there was no restriction upon his output. There would then be no failure of adjustment at the margin between effort and reward, but the effort cost of output would be raised and *ceteris paribus* output would be reduced. Welfare could be increased by allowing the worker greater freedom.

A third combination, that of imperfect external and perfect internal adjustment, would arise wherever it is possible for the employer to insist on a minimum level of output, but where he does not regulate the way in which the work is organised. Examples of this can sometimes be found in real life in small factories and it exists in a modified form in the " co-operative contract " referred to below. Welfare would be increased by any measure which enables the workers to vary their output freely.

Lastly, we have the normal conditions of factory work, those in which both external and internal adjustment are imperfect. The result is that economic welfare is diminished in the two ways already distinguished ; both by lack of adjustment between effort and reward and also because effort costs are higher than need be.

(*c*) Industrial Relations

9. This analysis enables us to draw certain practical conclusions which are of the greatest importance for industrial relations. In the first place, in theory, the bargain over the sale of labour should not be made in any terms other than a price per unit of product. Any contract for labour which is made in terms of the hours of work or other conditions of

behaviour under which labour must be given, necessarily reduces economic welfare.[1] However, the practical conditions of factory organisation are often likely to make this ideal unattainable either because no output is distinguishable for the individual worker or because team work requires uniformity of behaviour. Secondly, therefore, where this is the case, anything which will enable the individual worker to secure greater freedom to make adjustments within the general framework of factory organisation will necessarily increase welfare.

These conclusions are not new. Practical men have long advocated means to achieve both these aims, but so far there has been no theoretical economic justification for them.

The first conclusion is that the ideal method of employing labour is for the employer to organise the work in such a way that the workers are, so far as possible, placed in the position of what we have called the Domestic Worker. The employer provides the materials, tools, power and premises, and contracts with small groups of workers to buy their output at a mutually agreed price. The workers under this system, by virtue of their position as contractors, enjoy complete freedom from supervision and timekeeping. This method, known as " co-operative contracting " or in France as the " commandite " has been widely used in many different forms of work.[2] It has been ably advocated by Dubreuil in papers to the British Association for the Advancement of Science in 1932 and 1934 in which he described his experiences whilst working at the bench under this system.[3] While it is true that this method is concerned with group labour, the central principle behind all varieties of co-operative contract which has made for success is the freedom it confers on the workmen.

These methods are, however, often very difficult to employ in the increasing complexity of industrial organisation. The problem then becomes the second one of how to give the industrial worker the maximum freedom within the industrial organisation. It is this problem which has given rise to the development of personnel management and of joint consultation, two aspects of labour management now universally recognised as playing a major part in the efficiency of labour.

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[1] It is important to notice that it is the restrictions on the workmen's behaviour at work that are injurious to welfare, not restrictions applying to the external working conditions, e.g., light and ventilation. Legal restrictions designed to improve the working environment in factories are probably always justified. This is not true, however, of restrictions applying to hours of work or meal times. They can only be justified if they protect workers who cannot protect themselves. Under conditions of full employment there is no reason why the law or agreement should prevent a man working what hours he prefers.

[2] Hare, A. E. C.: " Co-operative Contracting in New Zealand ", *International Labour Review*, Vol. LI, No. 2, Feb. 1945, p. 167.

[3] Dubreuil, H.: *A Chance for Everybody*, 1939. Translated from *Chacun Sa Chance*, 1935.

Personnel management consists, in essence, of the mutual adjustment of the individual and the factory environment. Thus many of its functions are directed to this end. Recruitment of suitable labour and the selection of particular workers for particular jobs are both concerned with finding out the individual's suitability for the work required of him. Training is another aspect of the same process of helping the worker to do his work easily. Again, 'welfare' work in many of its aspects is concerned with overcoming or reducing the individual's difficulties in industrial life. Thus personnel management endeavours to put back into industrial life by deliberate adjustment some of the freedom of the individual to make his own adjustments which was lost with the advent of group discipline within the factory.

Joint consultation is but another way of pursuing the same aim of freedom within a highly organised framework. "If man is to grow to greater freedom in industry, it must be by accepting its order . . . whilst finding ways of expressing his . . . ideas concerning its method, its purpose and how it may be controlled. Expressed practically this means taking him into consultation even to the extent of saying how work might be done or done better."[1] Joint consultation in fact succeeds by enabling work to be done more as men prefer to do it. Thus, both personnel management and joint consultation aim to help the worker to approach nearer to the position of perfect internal adjustment. In so doing, both lower the effort cost of output.

10. In conclusion, it may not be inappropriate to point out the bearing of the theory of effort on the broader field of industrial relations. Industrial relations in its present stage of development as a separate specialisation consists of an assembly of very diverse data related in various ways to labour and its problems. Thus, the separate parts of the subject, e.g., the settlement of disputes, industrial psychology, personnel management, trade unionism, are not at present unified by any broad underlying principles. This

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[1] Northcott, C. H.: *Personnel Management*, 1945, p. 176.

is the normal state of a young subject; many data, but few generalisations.

Since the facts of industrial relations are all related in one way or another to the sale of labour, any generalisations concerning the mechanisms of this transaction will at once tend to unify otherwise diverse aspects of the subject. The theory of effort here outlined appears to be capable of relating the empirical observations of industrial psychology to the practices of personnel management and joint consultation in such a way that they all fall into place as part of the general theory of welfare economics. If this is so, it may perhaps be a starting point for a very desirable and much wider unification of the present diverse body of matter which constitutes industrial relations.

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A Note on the Theory of Income Redistribution

By ALAN T. PEACOCK and D. BERRY

I

With the increasing interest in problems of the welfare state in recent years, economists have been led to consider whether some forms of subsidisation may not be better, in some sense, than others. For instance, it has been held by some of them that " direct " subsidisation is better than " indirect " subsidisation because the former interferes less with the allocation of resources.[1] It is the purpose of this note to test these conclusions under different conditions by means of theoretical economic analysis.

II

Judgment of the methods of income redistribution invokes some welfare criterion. However, as we suspected, when we came to enquire at the tool-shop for a gauge which could perform the task of measuring changes in the community's welfare as a result of the employment of these different methods, we found that we had placed a tall order. In fact we were informed by the tool purveyors, Mr. Little in particular, that there is some disagreement among the makers as to whether such a gauge would be at all accurate and Mr. Little is doubtful whether it can even be used for measuring at all.[2] As humble tool-users, we decided that we should have to avoid examining the effects of income redistribution on the preference scales of a " community ", for fear we might find the gauge difficult to manipulate in our inexpert hands. After joint consultation we returned to the tool-shop with a clearer idea of the apparatus and its specification that would perhaps be useful to us, convinced that we might do better to content ourselves with an examination of the changes brought about in the condition of the individual income receiver offered different forms of state subsidy. As a subsidy is really a negative tax, it occurred to us that we might be able to adapt the gauge used recently by Miss Joseph and other writers[1] to measure the effects of direct and indirect taxes. This standard embellishment of the indifference curve apparatus is well known, but more exhaustive rummaging in the tool-shop has revealed to us that the Joseph invention had been anticipated by 27 years by Enrico Barone, only six years after the appearance of Pareto's *Manuale* and before the pioneer work of Slutsky in 1915.[2]

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[1] Cf. Lerner's criticism of the two-price stamp plan in his *Economics of Control*, Chapter IV, the discussion of the Rhys-Williams proposals by Professor Meade in *Planning and the Price Mechanism*, Chapter II, and A. C. Pigou : " The Food Subsidies " (*Economic Journal*, June 1948, p. 205).

[2] See his *Critique of Welfare Economics* (Oxford University Press, 1950), particularly Chs. VI and VII.

Barone proves by indifference curve analysis that the " Treasury " could obtain a larger revenue from an income tax as opposed to a purchase tax for a given " loss of utility " suffered by the taxpayer. The corollary, that a given revenue yield would leave the taxpayer " better off " under an income tax, was demonstrated by Borgatta and Miss Joseph. Both analyses are partial equilibrium ones in the sense that (1) the illustrations are in terms of two goods only, the consumer choosing between different combinations of money income and one " other " commodity, the available money income being a given, fixed amount ; (2) influences on the production side are ignored. Thus the analyses can either be regarded as partial in the sense of treating the situation of consumers as consumers only, or it is implied that none of them are in any way engaged in the supply of the commodity in question.

Remembering these qualifications, we can now proceed to adapt the Barone and Borgatta-Joseph apparatus to the theory of negative taxes. If we wish to envisage the central authority prepared to disburse a given sum and seeking to use it to " maximum advantage " in the light of some definite social policy, we shall use the Borgatta-Joseph model. If, however, our authority seeks the method of disbursement which will achieve a given prescribed " increase in welfare " (represented by movements from a lower to higher indifference curves) at lowest budgetary cost, we shall use the Barone model. The latter course might seem more appropriate in the case where the authority pursues a policy dictated by some conception of an optimum real income distribution. Yet however " utopian " or comprehensively " blue-print " the broad aims of its social policy may be, such an authority may fall far short of the omnicompetence implied by this approach, for even if its political mandate were firm enough, the intractable nature of the problems of execution suggests that, in practice, it would be reduced to groping its way towards its ideals by more piecemeal measures. In the light of the competing claims of different types of government expenditure, it may be more realistic to assume that the authority has a more or less limited sum to dispose of, and is concerned with " doing the best under the circumstances ". Accordingly, we propose to elaborate the Borgatta-Joseph model rather than that of Barone.

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[1] M. W. F. Joseph : " The Excess Burden of Indirect Taxation " (*Review of Economic Studies*, VI, 1939, pp. 226–31) ; A. Wald : " The Classical Indictment of Indirect Taxation " (*Quarterly Journal of Economics*, 1945, pp. 577–96) ; A. M. Henderson : " The Case for Indirect Taxation " (*Economic Journal*, December 1948, pp. 538–553).

[2] See *Giornale degli Economisti*, Vol. XLIV, 1912, p. 329, footnote 2. The precise form used by Miss Joseph is found in the development of Barone's analysis by Gino Borgatta : " Intorno alla pressione di qualunque imposta a paritâ di prilievo " (*Giornale degli Economisti*, 1921). Credit for this discovery must go to Gêrard Dehove who makes an exhaustive examination of the Italian literature on taxation theory in his book *Impôt, Economie et Politique, Vol. I* (Presses Universitaires de France, 1947). M. Dehove is apparently unaware of the independent use of this analysis in Anglo-Saxon literature.

III

Before stating the theory with more precision, let us be quite clear of the initial assumptions :

(*a*) We assume the validity of the indifference curve criterion of welfare.[1]

(*b*) We abstract from the problem of the effects of these various forms of subsidisation on the supply of factors (we hope to consider this problem in some detail in a future article).[2]

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[1] Of course, we are quite at liberty to *define* an increase in welfare as a movement from a lower to a higher indifference curve or, using Little's terminology, as a movement from one " chosen position " to another. If we believe that welfare is subjective this still does not allow us to say that choosing for oneself how to allocate income is " better " than having choices made for one, for a person may not choose to satisfy wants by specific choices, but may choose quite voluntarily that others, e.g. a government elected by a majority, shall decide for him. In practice, too, it is not necessarily assumed that benefits conferred on individuals by different forms of subsidisation are necessarily confined to them. Thus a state may pay family allowances, not merely in order to relieve poverty and to redistribute income, but in order to maintain the birth-rate. However, it is probably not devoid of realism to hold that at least the *main* if not the sole purpose of many forms of subsidisation is to promote income equality.

[2] Parallel to Frisch's criticism of the famous Hotelling solution on the grounds that an income tax is an excise tax on a factor of production, it has been shown by Wald (*op. cit.*) and Henderson (*op. cit.*) that both direct and indirect taxes involve a distortion of the marginal rates of substitution between leisure and income. Thus a theory of negative taxes would have to take these criticisms into account if it were to be complete.

(*c*) We neglect the formal difficulties associated with indifference curve analysis.[1]

Thus, postulating the usual system of smooth curves, convex to the origin[2] for an individual faced with a choice between expenditure on one commodity and all others represented by " income ", then a direct income subsidy will leave him on a higher indifference curve than an " indirect " subsidy represented by a price fall for the subsidised commodity (the converse of the Borgatta-Joseph case). The corollary (the converse of the Barone case) can be stated thus : if the central authority wishes to afford an individual income receiver a given increase in welfare represented by a movement to a higher indifference curve, then a smaller sum will be required if he receives a direct subsidy rather than an indirect one.

In Fig. 1 (*a*) which employs the Borgatta-Joseph model with a " change in sign ", AB is the " factor cost " price line, AC that for the subsidised market price (for simplicity we assume that the price falls by the amount per unit subsidy). MN is then the amount of the subsidy to a consumer who is at position M on an indifference curve I_1. As AC is tangential to I_1, then a line parallel to AB passing through M must be tangential to a higher indifference curve, i.e. an income subsidy of the same amount will land the consumer on a higher indifference curve. One exception may be noted. This is the case where the substitution elasticity between the commodity and income is zero, i.e. the indifference curves are right-angled.[3]

Fig. 1 (*b*) illustrates the corollary adapted from Barone's original diagram (*loc. cit.*). (Thus, in order to land the individual on the *same* higher indifference curve compared with the pre-subsidy position, the required subsidy would be less if it were distributed directly rather than indirectly.)

In practice, as recently in Great Britain, the subsidised commodity may be rationed. A further embellishment of the Borgatta-Joseph model can help us to examine this position, although our previous conclusions will be modified. In Fig. 2 (*a*) a case is depicted where the demand for a certain commodity, say a foodstuff, is such that in both the case where its sale is subsidised or the consumer's income is subsidised by the same amount, he would like to buy more than the ration. Where choice is thus restricted and rationing is assumed to be effective, then there is nothing to choose between the two methods of disbursement. M is the law-abiding consumer's most preferred position; all points to the right of the rationing line AB are irrelevant.

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[1] For instance, those catalogued by Mr. Little in his article " A Reformulation of Consumer's Behaviour " (*Oxford Economic Papers* : January 1949). So far as food subsidies are concerned, however, the stock problem is not important in our analysis. The problem of changes in tastes is, of course, an important one, but it is a difficulty of statics in general.

[2] This convexity is usually derived from the principle of the diminishing marginal rate of substitution, but it is also compatible with the more " guarded version " favoured by Mr. Little (see *op. cit.* Chapter 2), namely, that each collection of goods is chosen in one, and only one, " price-income " situation.

[3] Where concavity is postulated, it can be shown that our conclusion sometimes holds and sometimes does not, depending upon the degree of concavity.

Subsidising rationed commodities will present our authority with difficulties, if goods become more abundant, and if competing claims on government expenditure demand a stabilisation of the sum to be redistributed there may be a strong temptation to retain rationing, if only for this reason. Nevertheless, so long as the demand condition depicted in 2 (*a*) applied at a new higher ration as well as at the lower one, then a reduction in the unit subsidy without a reduction in the *total* subsidy would actually mean an " improvement " upon the former " permissible " position. This case is demonstrated in Fig. 2 (*b*). The total subsidy MN (M′N′) remains constant for both income and price but a higher indifference curve is attained. If, however, this demand condition does not obtain at the higher level, then our original argument re-emerges and a direct money allowance would be an " improvement ", as indicated in Fig. 2 (*c*), where the consumer's position on KH is an " improvement " upon the one on EG. Finally, there is the case where the highest permissible indifference curve at the smaller ration is one which does not cut the line EG anywhere within the ration increment section (i.e. between AB and CD), but here the policy of reducing the unit subsidy in order to keep the budget outlay constant places the consumer upon an " inferior " position (cf. Fig. 2 (*d*)).

In the latter case, the difficulty could be solved and in Fig. 2 (*c*) the position improved if the central authority found it otherwise feasible to allow the extra supplies of the rationed commodity to be sold at factor cost. (We abstract here from any possible drawbacks in the shape, for instance, of administrative and retailing confusion resulting from the sale of different quantities of rations at two different prices.)

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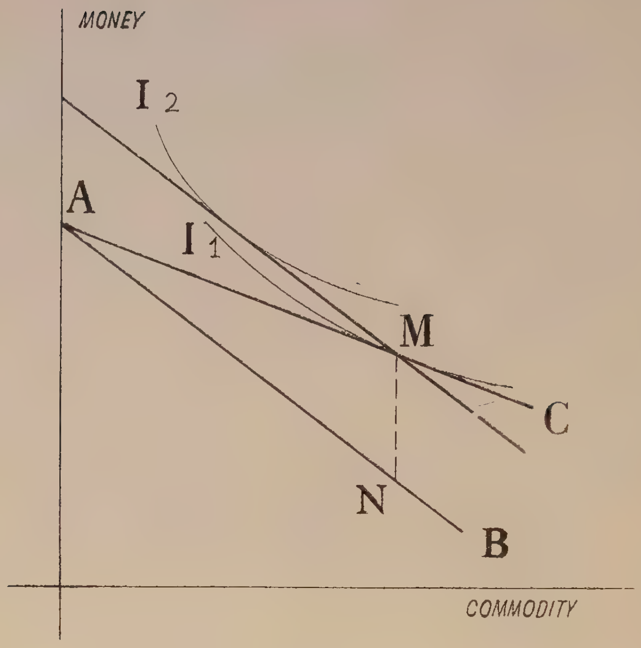

Figure 1 (*a*)

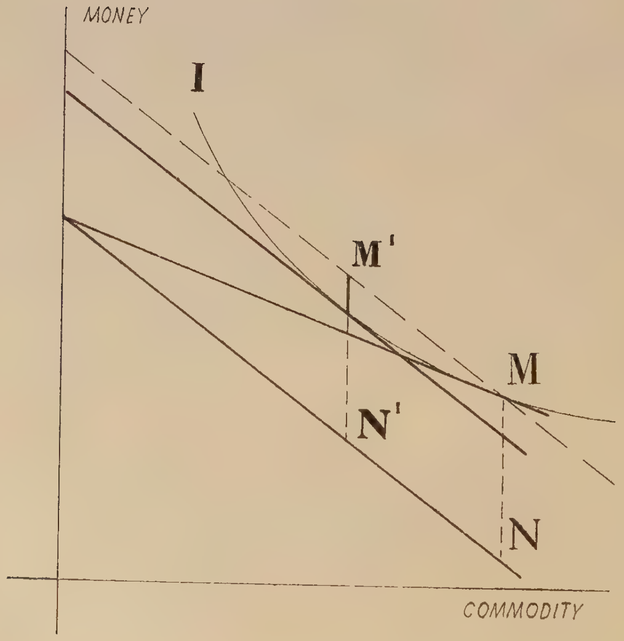

Figure 1 (*b*)

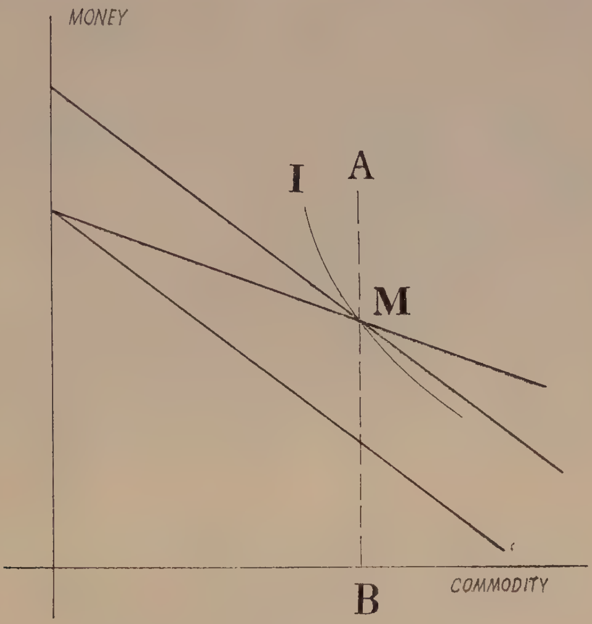

FIGURE 2 (*a*)

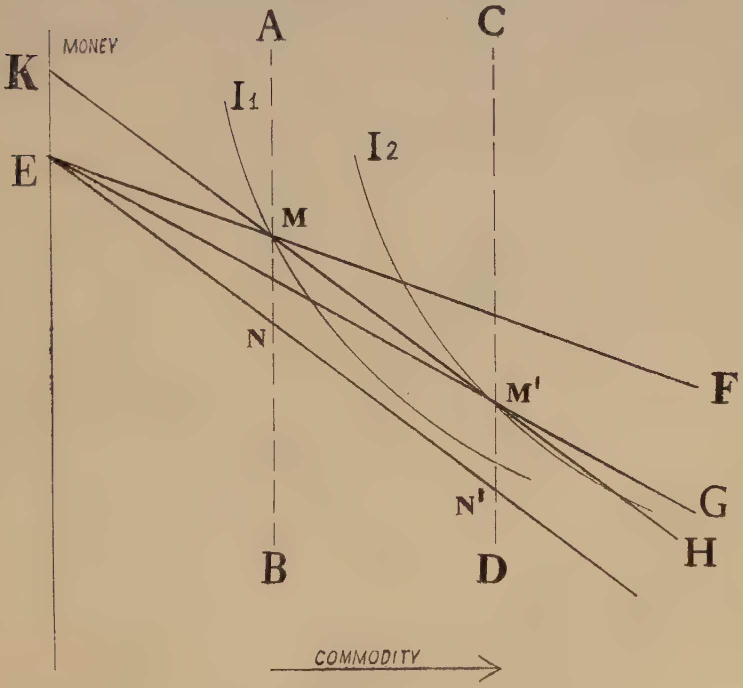

FIGURE 2 (*b*)

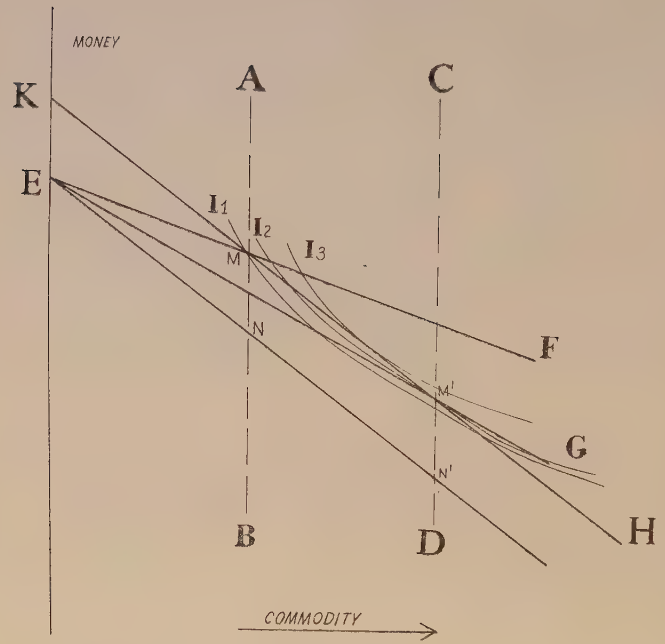

FIGURE 2 (*c*)

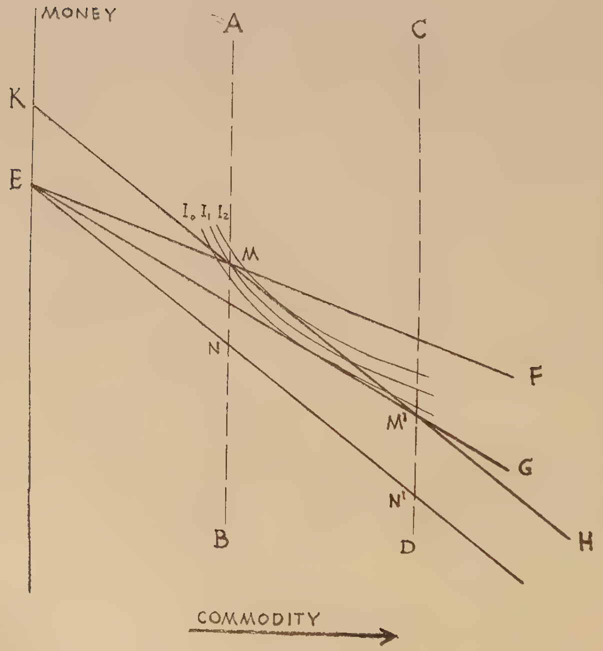

FIGURE 2 (*d*)

Evan Durbin, 1906 - 1948

By E. H. Phelps Brown

Evan Durbin offered this collection of his papers[1] to the public as an earnest of that work on *The Economics of Democratic Socialism* which as a Junior Minister he still hoped some day to find time to write. *Dis aliter visum.* On the third of September, Cromwell's day, in 1948, he saved two children from a rough sea on the Cornish shore; and, having lifted the second child on to a rock, himself fell back beneath the waves.

His book brings us now the thoughts on socialism of one whose own reasoning led him to endorse the active principles of the British labour movement, and did much to strengthen and develop them. His boyhood had steeped him in one of the main confluents of that movement, the zeal of nonconformity. His father came back from a Baptist mission in Ceylon to be the pastor of chapels in Devon, and latterly, in his mild and patient statesmanship, the Superintendent of the western area. His mother, herself the daughter and companion of a notable Congregational divine, was a great temperance advocate, and speaker to the British Women, who, in the last days of her earthly pilgrimage, moved to a town known to her hitherto only as a Vanity Fair, that she might find " a new sphere " there. Her love made the Christian path bright before him: he could not but have felt there was a mission in life for him. This was a home where the great issues of this world and the next were discussed earnestly yet with zest and freedom, almost with familiarity, and without claim of prescriptive wisdom by the elders. The son learned mastery of words, and the art of argument. Once, near chapel time, his mother called up the stairs, " Come on, we've no time to waste " ; he answered, to her delight, " We never have time to waste, only time to spare ". It was a setting at once of frankness, and reason, and love ; his nature grew freely in it, without self-consciousness or self-distrust.

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[1] E. F. M. Durbin : *Problems of Economic Planning.* Papers on Planning and Economics. With a foreword by the Rt. Hon. C. R. Attlee, M.P. (London : Routledge & Kegan Paul.) 1949. x + 214 pp. 15s.

This complete sincerity lights up his prose. Free from the fear of disapproval, and careless to placate, he wrote down rapidly what he would have said to his friends. His phrases have the cadence of the spoken word, the brightness of fresh-struck impressions of his thought : their spontaneity is more expressive than the hard-won *mot juste*. There is great expository skill in his writing, but no artifice : we take up his book now, and it is as though a recording were being broadcast, his own voice speaks to us again.

Like so many of the Labour members of Parliament of the inter-war years, he gained his first experience of public speaking as a local preacher. When later he ceased to believe the creed, he kept his unquestioning acceptance of personal responsibility for the common weal, and his clear sense that in difficult decisions we must find not the easy nor the propitious but the right thing to do. In this his socialism stands contrasted both with the creed of class war, and with the determinism for which developments are neither good nor bad, because inevitable. He was sure of our freedom to choose, and of our duty to use that freedom for the welfare of all our fellow men.

This ethical habit of thought brought him the quiet courage, the blend of humility with conviction, almost with arrogance, that has been noticed in the Quakers. He took no delight in shocking, but neither did any tremor warn him when he entered the gravitational field of some authoritative disapproval. Nor, if that were made manifest, did it shake him : he had reached his conclusions by careful argument, and would retain them until that argument was proved wrong. So he cared nothing for eminence, as such, and authority ; and was as little moved as any man by the propensity to conform. " Dare to be a Daniel, dare to stand alone, dare to have a purpose true, and dare to make it known ".

This courage, it is true, owed something to the theoretical bent of his mind. He believed deeply in the power of reason to legislate for practice. His mind was little given to day-dreams, but occupied its leisure in the quest for clear principles, even in fields of no immediate concern to him. Once, he said, while he was in the barber's chair, he was thinking out the principles that should delimit the freedom of counsel in cross-examination. He would not have minded that this was a matter in which working rules had been developed in an evolution of which he knew nothing, that there were authorities to be heard and manuals to consult. For him it was clear that from the incontestable elements of a situation conclusions could be deduced which either could be shown to be at variance with their premises, or else were correct; and having reached them he was ready to carry them into the camp of the expert. His first studies, it is true, were empirical; but that rather by accident. Coming at school, unwarned and unadvised, upon the parting of the ways, he had a choice for one period between Latin and science, and fleeing the Latin he went up to science. From that he went on to a scholarship in zoology, and a degree in it. But facts as such he found dull, he had no skill in dissection nor itch to experiment; it was a release for him when he could turn to philosophy, and expose the error of supposing that *matter* could evolve. He thought not visually nor by association, but through definition and deduction. This Cartesian bent was one of several traits which prompted the conjecture that he was of French descent; but though his father's family came from the cloth trade around Bristol, the name of Durbin does not seem to appear in the Huguenot records there.

In some men his ethical and logical energies might have fused to make a Genevan systematist. How very different he was from that. He was too fond of other people as they were to want to force them into any mould. He had far too much humour, and sympathy, to sit in judgment; and he had the deep liberal faith in personal freedom His sense of history, too, was strong: how often he uses the word " slowly "—" slowly attaining the certain dignity of our noble promise "—to mean surely and soundly. His mind was endlessly inquiring, testing, inferring; the same faith as gave him confidence in his conclusions, made him ready to alter them when he saw they needed amendment, and in his later years some of his ideas changed a great deal. In the present book we have the paper on Methods of Research that he published in 1938, to abjure his former devotion to abstract theory in economics, and " to apply to the existing social studies the principle that the traditional method of science lies in establishing theories out of evidence and by the verification of hypotheses ". Especially did he come to desire the interpenetration of the social sciences across their present boundaries, and the conduct of research by teams of co-operating specialists. He learned much from his friends. His work with John Bowlby on *Personal Aggressiveness and*

War, and, in his own *Politics of Democratic Socialism*, his debt to Reginald Bassett's *Essentials of Parliamentary Democracy*, witness his eagerness to learn by discussion and to bring the social sciences together.

His socialism, as that is defined in the book now before us, had two aims—equality, and planning. Of these, equality seems to have been the less important to him. He does not usually say much about it, except to censure the genuflexions of class distinction, and to argue that inequalities in the holding of property serve no economic purpose. He thought it likely that inequalities of net earnings remained necessary as incentives. He had no mystique of " the workers ", nor envious desire to pull down the well-to-do ; on the contrary, he had found that the wage-earners were often very hard on one another, and it was an aim of his socialism to bring them not only more of the arts of living that ampler means made possible for the better off, but more, too, of their art of being kind.

His faith in planning, however, was fundamental. This is a distinctive tenet of his generation, and separates it from its parents, who in their day had moved from Gladstone to Lloyd George. Why have so many men who, like him, came to maturity in the inter-war years, found in economic planning an essential of a humane society ? It cannot be only because of the economic disorders of the time : these were great, but not greater than many of his parents' day. If he is typical, the change was not so much in the state of human affairs as in the potentialities of control. The great rise in the standard of living—when he came of age, real income a head was half as big again as in his father's boyhood—made much that had once been irremediable now seem inexcusable ; to a young man before whom life opened like a garden, wars and slumps appeared desperately tantalising, the needless stupidities through which we deny ourselves " the world we can have for the asking ". For the means lay ready to our hand. The development of the administrative system ; the work of economic analysis, in showing how boom and slump arose not from impersonal forces but from individual decisions ; the ever-growing scope and power of applied science : these things made it intolerable to him that people should be hungry because too much food had been grown. It is always foresight that he stresses in his case for planning. It means, he said, " the substitution of conscious foresight for the instinctive adjustments of the competitive system"; "just as there is an extension of the field of cognition over the breadth of industry, so also is there an increase in the length of foresight in time". Without it, men "must suffer unemployment and depressions and the persistence of excess capacity (all directly traceable to the inability of economic administrators to foresee the results of their collective actions) just as their forefathers endured plagues and famine".

So he wanted planning to prevent the frustration of individual choices by lack of foresight and lack of coordination; and he wanted only such controls as were needed for that. He did not believe there were men wiser or stronger than the rest of us who should decide what is good for us; or any group which by some form of delegation, or the verdict of history, would become guardians of the social purpose entitled to enforce it on the people. For him, planning was necessary because, and only in so far as, it was a condition of freedom. Given the central staffwork to provide coordination and foresight, he wanted men to be as little controlled as possible. The socialist economy must work a pricing system, so that its resources may be directed to the fullest satisfaction of the wishes of consumers. There must be no direction of labour. In the nationalised industries there must be the greatest possible devolution of decisions. It was to make individual choices effective that he wanted planning, and that is why he called himself a democratic socialist.

This book is an important document in the history of ideas, and the memorial of a beloved companion. His qualities, that sometimes rode uneasily to subordinate employment, were fitted to high place, and these next years might have seen his growth to national stature. Death snatched him from a life in which he found intense happiness, and a country he loved dearly—"the meadows of the Thames, the wooded downs of Sussex, the ancient stones of Purbeck, the grey, grass-crowned bastions of Cornwall, the oak-wooded valleys of Exmoor, the ascetic calm of the Wiltshire chalk, and the splendour of the Chiltern beeches curving over the little hills". His ashes lie in the cloister of St. Mary College of Winchester in Oxford.

London School of Economics.

Book Reviews

Manufacturing Business. By P. W. S. Andrews. Macmillan & Co. Ltd., 1949. xviii + 308 pp. 15s.

Mr. Andrews explains in his Introduction that the range of his book is wider than the title suggests: it embodies an attempt to construct a consistent theory of the behaviour of business men. " Most of the problems that are discussed arise in business generally, and it has been necessary to develop some of the theory that is especially relevant to a non-manufacturing business ". The author took part in a series of investigations into a number of manufacturing businesses, and was thereby impelled, before the series was concluded, " to make a stock-taking of the general ideas that had begun to develop " . . . . " It seemed, however, that the book would hang together more if each problem was studied from the standpoint of a manufacturer, corresponding to the main focus of the practical research ".

He is dissatisfied with some of the emphases and conclusions of modern economic theory. " During the last twenty years we have indeed wandered far from the viewpoint of Alfred Marshall, and I should like to suggest the need for a re-appraisal of his great achievement as a practical theorist. The achievement of Marshall was to give a generally valid account of the facts of business life. It seems possible that we modern economists have been far too much concerned to give a consistent marshallian theory, and have tried too much to explain Marshall in a higher-critical way than to achieve a better description of the facts of industrial economics ". I take this to mean that Mr. Andrews doubts whether a consistent marshallian theory fits the facts today.

The opening chapter gives an elementary description of the forms of business ownership—the one-man concern, the partnership, the joint stock company. " It is not true that companies are generally irresponsible towards the shareholders " (p. 15). It is accordingly not correct to say (p. 18) that the amount of the ordinary dividend is " the directors' decision " : the decision is that of the voting shareholders in general meeting. The remainder of the chapter attempts a statement of the classical explanation of the rôle of the profit motive in competitive business, and " asserts that competition is much more important than modern economists tend to recognise ". He does less than justice to his case by saying that " this is shown " by the fact that the rate of profit on total investment does not tend to vary to great extremes, and that even for large businesses " naïvely referred to as typical monopolies " the average rate of profit does not appear obviously and grossly excessive; for as he subsequently remarks, " any lack of competition will bolster up inefficiency, and may be compatible with modest margins of profit " (p. 24).

In Chapter II the student who is unacquainted with business accounting is given a simplified description of the trading, profit and loss, and appropriation accounts, and the balance sheet of a manufacturing business. In the main body of the book the author makes much use of the relation of gross profit to total direct costs in his discussion of price formation in conditions of changing output. It would therefore have been desirable to consider in this chapter the significance of the arbitrary method of computing a figure for gross profit in the accounts as presented. The expenses which have actually to be paid out in cash are separated into two groups, one of which is charged to the Trading Account which throws down the " Gross Profit ", while other items, including such direct labour costs as National Insurance contributions and factory costs such as power and unavoidable repairs, are set off subsequently against the " Gross Profit " in the Profit and Loss Account, together with computed expenses such as depreciation and postponable repairs. It is consequently misleading rather than " useful in this connexion to think of gross profit as the difference between the value to the business of its output of finished goods and the total of the direct costs incurred in order to get it " (p. 42).

However, Mr. Andrews has now set the stage for the main burden of his book. In Chapters III to VI he develops what he has to say about the production and marketing aspects of manufacturing. Chapter III is devoted to the effects of changing outputs in the short period on costs of production, and Chapter IV to the effects of changing organisation, assuming time to make changes; with an appendix on managerial efficiency. Chapters V and VI are concerned with markets and prices, first in the sales market for the manufactured articles and then in the factor markets. A final chapter considers the theory of spontaneous changes in output of an individual business and concludes with a brief discussion of the fluctuations in general industrial activity which form part of the trade cycle.

There are many pitfalls in the path of systematic economic description, and the wary guide looks for the route which is least dangerous to himself and to those who would follow him. In his initial thinking everyone will go whichever way suits best his habits of thought, modifying or rejecting his ideas and his conclusions as he proceeds. When the time comes for exposition, however, it is often helpful in realistic studies to begin with a simple but nevertheless actual example which elucidates generally acceptable conclusions, and then to add the refinements and variations which are required to explain adequately the progressively more complex cases which obtain more generally in real life. The test of the initial generalisations is their capacity to stand the strain of elaboration.

Mr. Andrews follows a different course. In Chapters III and IV he introduces a model business whose affairs are simplified by abstracting it from most of the market forces which affect the behaviour of the most simple actual firm, and reaches conclusions concerning costs and price policy which are inevitably unreal. When the market forces are subsequently brought in, their effects are not formally considered from the standpoint of confirming or requiring the reformulation or abandonment of the partial conclusions already reached, and in the end no adequate or comprehensive synthesis is offered. On the contrary, summaries at each stage suggest a finality which the interim conclusions cannot possess. The cautious reader is left with a continuing sense of unreality, since the partial judgments not only conflict sharply with such knowledge and experience as he may have but are frequently contradictory to those which precede them. The counterpoint clashes with the melody and the discords are never resolved.

One illustration will serve. Mr. Andrews' model firm has a single plant in which it manufactures a single quality of article by a fixed production method and technical equipment, in market conditions in which no factor prices are subject to change and any output is sold at a fixed price. In such circumstances it can be readily believed that once the plant was in motion there would be little for top management to do. Mr. Andrews draws the conclusion that economists have erred in their teaching that management generally becomes increasingly inefficient as businesses continue to expand, and makes much of his dissent (pp. 126-135). He could hardly have reached that opinion if he had begun with an example of a small but expanding business subject to all the normal changes in supply and market conditions, with factor prices moving erratically, and quality differentials changing constantly in the product market. He would have appreciated more adequately the significance of what Mr. Kaldor summed up in the statement that " co-ordination is a fixed factor " and Professor Robertson called " the dis-economy of large-scale management ". In businesses in which growth involves increasing functional specialisation, top management becomes increasingly ignorant of significant changes, and each co-ordinating act takes longer to complete with undiminished efficiency. The number of questions deserving top-level consideration and decision multiplies, and successful co-ordination involves the new problem of making adequately informed judgments on evidence provided by the conflicting advocacy of ambitious specialists. The result is that important questions are crowded off the agenda. Delegation of such matters implies the abdication of the large firm from control. New business machinery which quickens the upward flow of information can at best do no more than postpone the stage at which managerial inefficiency more than offsets any continuing technical advantage from further expansion. Various passages in later chapters of the book indicate that Mr. Andrews is aware of some of these considerations, but he nevertheless allows his dissent from standard teaching to remain.

It may be that the choice of an unrealistic simplified model has led Mr. Andrews astray in his discussion of cost behaviour and price formation in relation to output policy. He contends that average direct costs are generally constant throughout the significant range of output variation from a given plant, and even if he concedes any ultimate rise he believes it would never outweigh the continuing fall in average indirect costs as output increased. For purposes of price fixing he contends that overtime payments and material wastes must be regarded as "extraordinary costs" and not taken into account. Use of a more realistic model would surely have convinced him that the attempt to force more and more output through a given plant would inevitably in due course send marginal costs shooting up as the result of mere choking-up and congestion of the facilities, as well as increased wear and tear. So long as price remained unchanged, a firm might find it physically impossible to fulfil all the orders that might descend upon it, to say nothing of securing an increasing net profit from meeting them all.

In general Mr. Andrews finds fault with the marginal approach to price and cost studies. "Instead of the business man being thought of as restricting his *output* to the point where his marginal revenue curves cut his marginal cost curves, he should be regarded *as quoting a price* which will bear a definite relationship to the average direct costs of the product—the addition being the amount which he thinks he can take from the market without giving possible competitors an opportunity to cut into it (or into his share of it) in the long run" (p. 174). Economists represent the business man "too much as a spiv", and "generally seem to have too short-term a view of the economics of scale" (pp. 270–1). All of this accords ill with Mr. Andrews' own insistence on the social benefits from keen competition in securing the avoidance of waste of resources. It is certainly true, but in no way new, that in some markets (e.g., for branded goods) frequent changes of price are inexpedient; and, more generally, that large firms cannot usually adjust their prices as quickly as their small competitors, so that they may miss opportunities for profitable expansion of output or hold a price which involves a drain on their working capital. It cannot, however, be sensible to maintain that if a firm could know the rates of change of its avoidable costs as output varied, and of its flow of receipts with variations in sales, it would not then be in the enviable position of being able to make any deviation from the point of maximum short-run return a conscious decision based on an informed estimate of compensating long-term advantage.

Mr. Andrews almost convinces me that a case might be made out in favour of compulsory joint supply. I think I might like the publishers to bind up his book together with Professor George Stigler's *Theory* *of Price* and to decline to offer *Manufacturing Business* separately. But it needs an index.

ARNOLD PLANT.

The Balance of Payments and the Standard of Living. By R. G. HAWTREY. Royal Institute of International Affairs. 1950. 158 pp. 8s. 6d.

This book contains both theoretical analysis and a discussion of current problems. The main theme is the balance of payments and the principal questions asked are: " how far the adjustment of an adverse balance can be left to the free working of markets, and, where free working is to be departed from, what kind and extent of interference are justifiable or desirable."

Professor Hawtrey considers first the adverse balance of Britain and of many other non-American countries caused by the need for re-equipment (both of producers and of consumers) after six years of war, a need backed by large quantities of ' redundant money ', also the legacy of the war. He concludes that, in Britain at least, an adverse balance of payments could not have been prevented, during the early post-war years, by fiscal and monetary measures alone and that controls and restrictions were the only alternative to active inflation. In his analysis of inflation and inflationary pressure, Professor Hawtrey devotes more attention than most British writers to the quantity of money and to monetary measures and perhaps less to the flow of money and to budgetary policy, except in so far as the latter affects the quantity of money. It is certainly important not to ignore the quantity of money which has been of fundamental importance in many countries and which can greatly influence the propensity to consume and to invest. But these propensities can also be directly influenced by other factors. For Professor Hawtrey the elimination of inflationary pressure seems to mean almost exclusively the restoration of a normal relationship between the quantity of money and the national income. He admits that there is no fixed ' normal ' relationship; money is ' redundant ' if the supply of it is such as to lead people to spend too much. But may not this way of looking at things tend to give insufficient emphasis to measures other than those that affect the quantity of money ?

Professor Hawtrey considers, secondly, the possibility that Britain and the other older manufacturing countries of Europe may be permanently unable to achieve a balance, without import restriction, with the newer countries on which they depend for their primary products and which are rapidly industrialising themselves. Thirdly, he considers the possibility of a similarly intractable balance between the United States and the rest of the world, the possibility of a " long-range dollar problem ". In both cases he believes that the relevant elasticities *may* be such that at no rate of exchange could a balance be achieved, and that import restriction and discrimination may be inevitable. It is noteworthy that Professor Hawtrey lays special stress on the case of import restriction necessitated by completely intractable adverse balances. Other writers have more forcefully advocated import restriction, and discrimination, even where a balance could be achieved without them at some rate of exchange, in the name of international equity, usually to prevent an undue worsening of the terms of trade vis-à-vis the United States. Professor Hawtrey also believes that " a specific discrimination [by Western European countries] against imports from the United States as such could hardly be contemplated ". " The restrictions will be confined to the products which have to be paid for in dollars, but will extend to imports of those products from all quarters."

Professor Hawtrey's conclusion that controls may be permanently necessary is based mainly on the possibility of completely intractable balances resulting from low elasticities of demand for exports and imports. He devotes little attention to the question whether a country attempting to maintain a very high level of employment, even if the elasticity of demand for its exports is relatively high, can balance its accounts without controls, both controls to restrict imports and to force producers out of a safe home market into relatively uncertain export markets, and controls to prevent a continuous rise in prices and wages which could only be offset by repeated devaluations that would eventually destroy confidence in any rate of exchange. He possibly feels that an attempt to maintain such a high level of employment would be so unwise as not to merit serious consideration.

Professor Hawtrey also considers what kind of interference with the free working of markets will be best as a permanent arrangement if international balance cannot be achieved without it. For Britain at least he would confine direct limitation of imports to rationed goods and rely exclusively on taxation for the rest. This taxation would include only moderate protective import duties ; the principal deterrent effect would be provided by purchase taxes, applying to home-produced and imported goods alike, on import-type commodities. (This proposal raises interesting theoretical and practical problems that cannot be discussed here.) These measures of taxation, rationing and direct import restriction should, in Professor Hawtrey's opinion, be made sufficient to obviate the need for exchange control ; this should be abandoned at the earliest practicable opportunity.

The author's discussion of devaluation will be of particular interest to readers. The devaluation of September 1949 was in direct conflict with the views he held at the time and, writing in March 1950, he had not seen any good ground for modifying them. His arguments cannot be refuted simply by pointing to the large increase in the sterling area's gold and dollar reserves during the year following devaluation. This can be accounted for in considerable measure by the reversal of speculative movements made in anticipation of devaluation (admittedly a temporary and non-recurrent gain), by the recovery in U.S. activity and, after mid-1950, by the repercussions of the war in Korea. It may be that, in the event, devaluation could not have been avoided, but Professor Hawtrey is still entitled to enquire whether it was beneficial apart from the temporary gain of short-term funds. He is also entitled to question the degree of devaluation, which was greater than had been commonly expected.

Professor Hawtrey criticises the devaluation both as a short-term and as a long-term measure. He believes it was unnecessary as a short-term measure to stimulate British exports ; these were limited not by high costs but by overburdened order books and long delays in delivery. Devaluation would therefore reduce dollar earnings ; any small increase in the volume of dollar exports would not offset the fall in price but it would slow up re-equipment in Britain. Nor would the import bill be reduced since imports were already tightly controlled.

How far can this view be accepted ? There is certainly room for difference of opinion about how far, at least outside the engineering industries, British exports were limited by lack of supplies and slow delivery rather than by high costs and prices. The volume of exports did, after all, fall off during the second and third quarters of 1949 ; the E.C.E. calculations of relative costs in Britain and America which Professor Hawtrey quotes are open to question ; and during the American recession her exports may sometimes have been offered at prices below the cost of production. But even if Professor Hawtrey's assessment of the facts is correct it must also be remembered that lower prices may help to offset the buyer's reluctance to wait for his goods. The reduction of one-third in the sterling area countries' purchases from the dollar area following devaluation, compared with the cut of only one-quarter agreed upon at their meeting in the summer of 1949, may possibly reflect partly a greater willingness to wait for British goods after their prices had been so greatly reduced in relation to American prices. Although devaluation may not have reduced Britain's dollar imports it may have helped to reduce those of other sterling area countries.

Professor Hawtrey also criticises the argument for a devaluation of 30 per cent. as a means of stimulating British exports in the long run and of achieving in one fell swoop a possible long-term equilibrium rate of exchange. A forecast of the rate of exchange that will be appropriate three years hence can, he claims, be the merest guess-work. In any case he believes that the British wage and price level are bound to be adjusted to the devalued pound before long ; he thinks indeed that they ought to be so adjusted.

For all these reasons it is impossible for Professor Hawtrey to regard the British devaluation, followed by the devaluation of many other currencies against the dollar, as an essential move towards a world in which restrictions on trade between the United States and other countries, and indeed trade restrictions throughout the world, may be reduced to reasonable proportions.

The only consolations he can draw from devaluation are, first, that it will help to get rid of ' redundant money ' in Britain as the inevitable rise in wages and prices raises the value of transactions in relation to the quantity of money. The possibility of raising wages by 44 per cent. without putting British costs out of line might also make it practicable to remove the food subsidies ; this would, according to the author, result in a rise in the cost of living of the order of 10 per cent. Finally, devaluation, being inevitably followed by a corresponding rise in prices, will ease the problem of the sterling balances ; each pound repaid will represent a smaller volume of British exports, and higher sterling balances will have to be retained as monetary reserves in view of the higher prices.

In this book Professor Hawtrey raises many important problems and his analysis of them will be of general interest. Few readers may agree with everything that he says but all will find in the book much food for thought.

G. D. A. MacDougall.

The Electric Lamp Industry : Technological Change and Economic Development from 1800 to 1947. By Arthur A. Bright, Jr. The Macmillan Company, New York. 1950. xxviii + 526 pp. $7.50, 37s.

There are very few good economic studies of modern scientific and technological advances, and the gaps in our knowledge are not easy to fill. Industrial development is complex and its study involves an acquaintance with natural science, engineering, business organisation and economic analysis.

Members of the Massachusetts Institute of Technology have undertaken a series of five studies in this field under the leadership of Professor W. R. Maclaurin and with the financial help of the Rockefeller Foundation. The first was Maclaurin's *Invention and Innovation in the Radio Industry* and the study under review is the second. It deals with the discoveries and developments in arc, incandescent and electric-discharge lighting during the last 150 years and it seeks to make clear how the process of innovation has been influenced by cartelization, tariffs, the patent system, anti-trust legislation and other environmental factors.

The book is divided into five sections. Part I is a brief introduction on the economic position of the electric lighting industry. Part II traces the genesis of the lamp industry. An account of the rise of electric-arc lighting, of the development of incandescent electric lighting to 1880, and of the work of Edison is followed by chapters on the commercial and technological development of the lamp industry during its formative years, 1880–1896. Part III carries the story on to 1912. It describes the growth of the industry in America and Europe, the development and introduction of new filament materials, improvement in design and methods of lamp making, the triumph of incandescent electric light over incandescent gas light—despite the Welsbach mantle which deserves a story of its own—and the beginning of electric-discharge lighting. Part IV deals with the mature industry. It discusses the influence of the patent licensing, patent litigation, and distribution policies of the General Electric Co. and Westinghouse, the anti-trust action of 1924, the rise of Japanese competition, the problems of the independent producers with regard to parts and machinery, the characteristics of the industry in other countries, the international cartel and the relation of the American industry thereto. Four chapters are devoted to the technological developments of the period 1912 to 1947—the improvement in incandescent lamp design, progress in production methods, new electric-discharge light sources, the development of the fluorescent lamp and its commercialisation. Mr. Bright's main concern is with the American industry and he discusses European developments only in so far as they throw light on this. He shows that Europe provided the scientific background for the incandescent lamp and the arc lamp, the advances in chemistry that made possible the introduction of metallic filaments (and most of the new filaments were originally introduced there), the flaming-arc, the neon tube, the quartz mercury-vapour lamp and the sodium lamp. The U.S. has, of course, contributed to the scientific advance, but its most striking contributions have been in engineering development, design, production methods, machinery and energetic sales promotion.

Mr. Bright tells his fascinating story of science, invention and hard-headed business very well. He reduces the complexities of his material to manageable proportions and casts it in a form enabling laymen to grasp the main lines of technological change and the main influences determining the direction and pace of innovation. The reviewer would, however, have liked to be told more about the chief personalities involved, their ambitions, their attitudes, their judgments, and their mistakes. Where so much depends on major decisions one needs to know about the ideals, objectives and methods of the leaders responsible for them. Though this is not always easy where living people are concerned, Mr. Coase in his recent study, *British Broadcasting*, has shown that it can be done.

Mr. Bright devotes Part V to an evaluation of the progress achieved by the American lamp industry and to some conclusions about its environment. On average the G.E.C. has produced 65 per cent. of the U.S. lamp output in the last fifty years and controlled or influenced a further 25 per cent. through its patent licensees. The industry leader has shown great ability in achieving technological advances, and in improving design and production methods. The record is impressive but, Mr. Bright asks, might not development have been even greater, and price reductions quicker and larger, in a more competitive environment ? The G.E.C. was able to build up a strong monopolistic position by amassing large numbers of lamp and machinery patents and was able to prolong that position after the expiry of the principal patents. The limitation of licensees' production and exports, the obligation on them to grant royalty-free cross-licences to the G.E.C., and other restrictions "virtually froze the pattern of the industry for about thirty years". This power was buttressed by licensing agreements impeding the growth of adequate sources of efficient machinery for the "independents"; and infringement suits on patents of doubtful validity or coverage constituted a heavy drain on the unlicensed producers. Patent licensing also provided the means of reducing foreign competition in the American and world markets. In short, patent control was the cornerstone of the G.E.C.'s commercial dominance from which in turn have come the resources for the research, development and patent purchases which have ensured its continuance. However, even though the "independents" are relatively small and weak, Mr. Bright thinks that their competition has been valuable as a continual threat, in speeding price reduction and, in one or two cases, in taking the lead in a new development or stimulating the leader to move more rapidly. He makes proposals for strengthening their position.

Mr. Bright also suggests that educational, non-profit and, possibly, government laboratories should engage in lighting research since a situation in which the industry leaders are the main source of knowledge does not provide the best environment for fundamental progress in new light sources which might jeopardise the vested interests in the older incandescent lamp.

Lastly, Mr. Bright canvasses various possibilities for modifying the patent law. In the lamp industry, and in others, research and patents have supported one another and, in combination, they have been very profitable. So much is clear. But it is also clear that, in combination, they have been productive of great advances. The question is whether these advances could have been secured at a lower cost and/or at greater speed. We do not know enough to answer this with any certainty. But it looks as though the American anti-trust law has not been strong enough to overcome weaknesses in the American patent law; and it also looks as though the American lamp industry might have done as well at rather less cost to the customers. There is certainly room—as there is in this country—for experiments in industrial environment. But so that these experiments can be well directed we need to know a lot more about the optimum size and organisation of research laboratories, about incentives to research and the most effective stimuli to invention, about the economics of prototypes, pilot plants and other development investments, about the best techniques for getting research results of Government, independent and co-operative laboratories speedily known and used in industry, and about many related questions. The M.I.T. studies should help. We need more such enquiries.

RONALD S. EDWARDS.

Inventions, Patents and Monopoly. Second edition. By P. Meinhardt. Stevens & Sons Ltd., London. 1950. 320 pp. 30s. net.

In the preface the author declares, " I have again tried to write a readable book and to eliminate intricate or moot legal points ". He has again succeeded in attaining this very objective. The book presents essential facts about the British patent law, including comparisons with other countries. The effect of the International Convention upon securement of patents is briefly and clearly told. The last chapter presents a summary of the Monopolies Act of 1948, and particularly its relationship to the Patents Act of 1949. Worthy of mention, incidentally, is the cockney version of the pronunciation of the word patent.

According to the author, the second edition of this book differs from the first in its description of the Patent Act of 1949. He thinks that the new legislation " constitutes a great step forward compared with the old law "—a rather sweeping statement in view of the fact that some of its provisions have not yet been put into practice. This book is a defence rather than a criticism of the present patent system.

Many sentences taken by themselves are misleading : for example, " An invention is a piece of property, just in the same way as a gold watch " (p. 22), and " The better the invention, the greater the profit " (p. 36). The author refers several times to the profit motive of the inventor. Does he mean the profit motive of the employer of the inventor ? To an increasing extent inventors work for salaries and in groups, and no special reward, not even a bonus, goes to any particular inventor. Meinhardt states that the patent system has secured the working of a great number of useful inventions which otherwise would have remained dormant. Can anyone cite any worthwhile invention that has not been developed, patents or no patents ?

The author fails to point out that the payment of renewal fees is not a burden to the wealthy corporation already entrenched with many patents and anxious to maintain dead-wood as well as live-wood for protection. Renewal fees, a regressive tax in effect, burden the " poor inventor " and discourage his activity and to that extent concentrate invention and economic control in large corporations.

After stating that fortunately a patentee does not have to rely upon the sanctions of the law to prevent infringement of his patent, the author adds, " The majority of British manufacturers and traders are honest and law-abiding " (p. 149). Perhaps a greater influence, though not mentioned, is a network of licences and cross-licences in important industries, each licensee agreeing to accept the validity of the licensor's patent. This arrangement in Great Britain, as in the United States, is conducive to so-called " respect for private property ". Likewise, there is no mention of cartels and other restrictive agreements in explaining the limited use of compulsory licensing.

The author's statement that "The question of public interest does not enter into the consideration of the U.S. courts" (p. 299) in declaring all monopolistic combinations to be illegal, is misleading in implying that some of their decisions are contrary to public interest. All such combinations conflict with public welfare in the United States. The main reason is that products, both raw and finished, produced there are sold mostly or entirely to its citizens. Public welfare demands that both be sold under competitive conditions. The author declares that "the British law adopts the more sensible method of treating each individual case on its merits" (p. 299). He does not indicate what they are. One factor presumably is that Great Britain generally buys and sells mostly abroad and therefore seeks competition in buying raw materials and tolerates combination in selling finished goods. Do other "merits" include reasonableness of prices, profits, wages, cartel restrictions, etc.?

The Monopolies Commission is investigating industries in which "patents play an important part in the regulation of the market". Further, "It has informally seen representatives of these industries, received oral and written evidence including information about costs and profits" (p. 299–300). Is such evidence available to the press, economists, and others greatly interested? And if so, would libel laws permit them to use it to create a public opinion in behalf of effective action?

FLOYD L. VAUGHAN.

The Economics of John Maynard Keynes. By DUDLEY DILLARD. Crosby Lockwood, London. 1948. xv + 364 pp. 18s.

"The purpose of this book is to give an exposition and not a critique of Keynes." Thus does the author state his position. One must not expect, therefore, a book containing original ideas, but one might have expected a fresh appraisal or the development of a new expository technique. That there is so little that is new in this book does not rob it entirely of value, more particularly as a textbook, but, to a teacher who appreciates the value of a critical approach to Keynes, even as a textbook this volume will have its limitations. It seems a pity that an author with an obvious facility for lucid exposition should have restricted himself so conscientiously to what is little more than a plain re-statement of Keynes' *General Theory*. Indeed, in following the original so slavishly, the present author may well have done a dis-service to Keynes, since students may find it easier to read Dillard than to go back to the source and that would be a tragedy. In no sense is the present volume a substitute for reading the original.

This is not to deny, however, that this book has certain merits. The author is concerned with the economics of Keynes rather than with Keynesian economics and that is a valid and important distinction. The excuse is "the need for a simple and thorough exposition of the ideas of the one man who stands out above all others as the chief architect of 'The New Economics'". The author is convinced that "Keynes' theories are most easily understood when they are related to the policies with which they were associated in his thinking" and it is emphasised that Keynes' ideas "are operationally significant". And the chief merit of this book is the linking of the *General Theory* with the policies which Keynes advocated. Its chief fault (and unfortunately the author is inclined to regard this as a virtue) is that the treatment is so "sympathetic". Rarely does the expositor find it possible to be critical of the Master.

The book under review focuses on the forces which determine the volume of effective demand. It opens with a statement of fundamental ideas—the *general* nature of Keynes' theory; the role of money; the relation of interest to money; the place of investment in the scheme of things; and uncertainty about the future. This, together with a brief review of the "classical background", provides the basis for a preliminary summary of the general theory of employment, with its emphasis on effective demand. From here (p. 59) Dillard follows Keynes very closely through a discussion of the concepts of saving, investment, income, and the wage unit; the propensity to consume and the investment multiplier (which is related directly—in the following chapter—to fiscal policy in depression); the marginal efficiency of capital; interest and money; and he closes the main treatment (at p. 236) with a chapter on Money, Wages and Prices. The author then turns to a consideration of the *etceteras*—War and Post-war Inflation (which is not one of his best chapters) and Further Applications, including Keynes on the Business Cycle and Keynes on International Economic Relations and Foreign Exchange Stabilisation. Here, he goes beyond the *General Theory* to consider some of Keynes' other writings. The book is rounded off with a discussion of the development of Keynes' thought and the social philosophy towards which it leads. This is the best chapter in the book. Each section is supplied with references for further reading and there is a classified bibliography of Keynes' writings at the end. One or two important omissions from the references are (at p. 92, footnote) E. G. Bennion's article in the *Review of Economic Statistics*, May 1945, and (at p. 205) Fellner and Somers' article in the 1941 volume of the same journal. Also (at p. 205), Hayek's *Pure Theory of Capital*, Part IV, should have been included. The reviewer's objections to the uncritical acceptance of Keynes' dogmas are numerous, but brief mention must be made of the notion of "ordinary" or "common" labour (in connection with the definition of the wage unit) at p. 72, Keynes' "fundamental psychological law" (marginal propensity to consume) at pp. 96–97, the incorporation of the "marginal efficiency of capital" in the system of "independent variables" at pp. 139–140, and again at p. 196, and the unqualified statement of the liquidity preference theory of interest. Despite a generous allocation of space to post-*General*

Theory references, one cannot but leave this book with the feeling that those who use it as their main text will find themselves very far behind the times.

J. S. G. Wilson.

Economic Doctrines. By Frank Amandus Neff. McGraw Hill. Second edition, 1950. xii + 532 pp. $4·50 (£1 18s. 6d.)

This is one of those physically heavy-weight and intellectually light-middle-weight texts which roll, in such impressive tonnage, from the transatlantic assembly lines. In accordance with the genre, and in a manner not—as yet—common in corresponding works in this country, the " material " is minced into some thousand odd half- or quarter-page captioned tablets of compressed pre-digested information. In an analytical book, which has to be worked through rather than read, this ultra-piecemeal presentation may be welcome and even merciful. But anyone at all usefully engaged with these matters ought to be encouraged to take his elementary history in slightly larger doses, and thereby, perhaps, to learn to *read*, rather than to indulge in some sort of depressing process of spasmodic mental " intake ". The effect is of coca-cola served up in liqueur glasses. After all, such a volume as this must derive its raison d'être from the equipment and encouragement it gives to the student to take a peep for himself at one or two of the great works it discusses, and Adam Smith (though goodness knows what some enterprising publisher may have in store for him) designed his work for continuous adult reading (which includes, of course, intermittent adult skipping).

That being said, it is a pleasure to pay tribute to the clarity and judgment with which the severe problems of selection and arrangement have been met. It would always be possible to haggle over the space allotted, or not allotted, to particular economists. Quite appropriately, Americans seem to come off best here. It was disappointing in one of the " German " chapters, in which Rau and Nebenius get a page or two each, to find no mention at all of Mangoldt, who brought theoretical economics to a distinctly more advanced level, in several major directions, than any one else in his time.

Professor Neff includes chapters on various socialist thinkers and on economic politicians like Cobden and Bright, and very justly so, since the history of the subject is surely one of the most suitable channels for opening up, or linking up, the student's interests in politics and social history. However, the last brief chapter on Totalitarian Ideologies hardly connects with what has gone before and cannot achieve much on its own. The biographical notes are an asset to the book and Professor Neff's justification of their inclusion is thoroughly well founded. In a volume which contains many thousands of factual statements it is very difficult to find a mistake. (There is one on p. 400: Wieser was not the son-in-law of Menger, but the brother-in-law of Böhm-Bawerk.)

We have taken as given the educational objectives which this volume sets out, so efficiently, to achieve. It is true that such a well-arranged compendium of facts will be a useful reference book for any reader. But in its presentation, in what it takes for granted, or seems unable to take for granted, the book seems to be primarily addressed to students of a barely first-year " inter " standard, and to aim at giving them a comprehensive 500-page review of the history of doctrine from the Old Testament to Keynes. It may certainly be asked whether this is the right level at which to introduce the history of economic thought, and in any case whether so large a volume, despite its many virtues, is the most suitable type of first book.

T. W. HUTCHISON.

The Pre-Election Polls of 1948. By F. Mosteller and Others. Social Science Research Council, New York. 1949. xx + 396 pp. $2.50 and $3.00.

The striking failure of public opinion polls to predict the results of the Presidential Election of 1948 in the United States was on the face of it a severe blow to the use of surveys for the exploration of public opinion. In fact, it may have turned out to be a blessing in disguise, because it has given rise to a very extensive inquest. Within eight days of the election a committee was appointed to study the Analysis of Pre-Election Polls and Forecasts. It drew its membership from universities, public opinion research organisations and the United States Census Bureau.

The report of this committee was published in December, 1948, and is included as an Appendix in the volume under review. The main part of the volume consists of reports which were prepared by the staff of the committee as a foundation for the 1948 report. It is a valuable objective study of the subject, and will be of interest far outside the field of election result forecasting. For example, the chapter by Mr. Hyman on interviewing and questionnaire design and the chapter by various authors on the processing, estimating and adjustment of survey data are useful reviews of the difficulties of social surveys without being so technical as to be unreadable by the layman.

The report, in fact, is possibly of greater value as an introduction to the study of the general technique of surveying public opinion than in tracing down the precise reason for the failure to predict the 1948 elections. The general conclusion seems to be that the pollsters were over-confident and did not make sufficiently good use of their data, and that they presented them in a manner which misled the public about the accuracy of the methods used and the extent of possible error in the results.

M. G. KENDALL.

Balance of Interregional Payments of New England. By Penelope C. Hartland. Brown University Studies, Volume XIV. Brown University. 1950. 125 pp. mimeographed. No price stated.

When interpreted in their widest senses to include not only the settlement of debts for goods and services but also loans, gifts, interest payments and the acquisition of investments and cash it is necessarily true that expenditure of any group equals that group's receipts. Any funds received must be devoted to one or other of the purposes mentioned while any import of goods or of services must be balanced by a payment or by addition to loans or gifts received. This concept of balance can be applied to any group that we may imagine. It is equally true of the individual family, the tribe, the individual firm, the county and the country. We are accustomed to think of it as it concerns the payments of one country to other countries. We do this perhaps in part because of a mercantilist bias which few can as firmly eschew as did Edwin Cannan. But we do it largely because in countries with developed banking and credit systems and more or less unfettered movement of goods and men adjustments necessitated by changes in interregional trade are usually so certain and swift as to cause us little concern. The flow of funds and of men internationally are generally so much less sure and swift that changes in the conditions of international trading give rise to difficulties of adjustment.

As a result of Miss Hartland's labours we have a case study of interregional trading which will prove invaluable to the teacher of international economics. Her compilation has been facilitated, if not indeed made possible, by two institutional arrangements in the United States. One is the division of the country into twelve autonomous banking regions, each with its central bank and centralised fractional reserve consisting of gold certificates. When the claims of two Federal Reserve banks on one another are determined within the Interdistrict Settlement, the difference, settled in gold, is strictly analagous to the flow of specie between countries on the gold standard. Miss Hartland has taken the division controlled by the Federal Reserve Bank of Boston. The other is the publication by the Interstate Commerce Commission of commodity freight movements by rail. This is also made on a regional basis, one region being New England. Miss Hartland shows considerable ingenuity in using the information that came her way and is disarmingly frank in her comments on the roughness of some of her estimates.

The general picture that emerges for the period 1929–39 of New England's debits and credits shows that trade and payments closely reflected in their movements the American national income. The main item in the balance was that due to commodity trade, which was heavily passive and made more so when transport charges were added. Sales of services brought a net payment to the region while the item 'capital movement and residual', which absorbed any inaccuracies in the other figure, also showed a persistent inflow of funds. In consequence there was year by year a gold inflow resulting from commercial and financial transactions. This varied between $95 million and $293 million over the period.

Interest attaches, of course, not to the balance itself but rather to the establishment of a balance that conforms more or less to the existing desires for trade on the part of the groups concerned such that undue strain is thrown on neither group. What, then, happened as a result of the large and persistent gold inflow ? The immediate answer is to be found in the operations of the Federal Treasury. In any district the Treasury obtains funds from taxes and borrowing and it disburses funds through Government contracts of various kinds, through service of the Federal debt and through various aid payments to districts and to individuals therein. When receipts exceed disbursements in any district funds accumulate in the Treasury's account in the Reserve Bank of that district. These funds are subsequently transferred to districts where there is a net disbursement. There is thus a capital movement from one district to another, a transfer without interest or recall.

The breakdown of transactions taking place through the Inter-district Settlement Fund enable one to see that there were year by year losses of funds on Government account varying between $50 million and $214 million. In general it might be said that transfers arising from Government operations more or less balanced the inflow caused by all other transactions until 1934, but thereafter a growing net inflow of gold took place. This inflow, together with a lowering of reserve ratios, led to the accumulation by New England banks of excess reserves. A large Government outflow no longer necessitated the sale of Government securities on the New York market in order to replenish reserves; excess reserves could be run down without affecting bank operations. These reserves tended to take the place of short-term paper while the holding of long-term securities began its phenomenal growth with the Federal debt.

There is nothing novel in all this but Miss Hartland has managed to put just the right amount of flesh and blood on the theoretical skeleton to stimulate interest. Perhaps in some quarters Keynes's Clearing Union would have had a better hearing if it had been prefaced with such a discussion of interregional balance as is found in this study.

D. J. MORGAN.

SHORTER NOTICES

Methods of Financing Economic Development in Under-Developed Countries. United Nations, 1949. II, B.4. Obtainable from H.M.S.O. vii + 163 pp. 9s.

The larger part of this report (pp. 43 ff.) consists of statements of the problem submitted by various international agencies and a relatively successful attempt is made in Part I to summarise the main conclusions. Various forms of financing economic development are discussed both from domestic and foreign sources. There is a real appreciation of the nature of the problem, which is considered with a good deal of detachment. Existing financial resources, it is emphasised, are often poorly used and projects are inadequately blue-printed. Inflation is very properly frowned upon as damaging both to economic development and to general confidence. Foreign help is considered essential in the early stages of any development programme, but the under-developed countries must be prepared to help themselves. Most of the difficulties are mentioned, though sometimes they are by-passed rather too easily. Thus, too much is probably expected of fiscal policy in areas where taxes are not easy to collect and it may well be that the conditions required by private foreign investors will prove unacceptable to the borrowing countries. In favour of this report, it might be said that there are no ready-made solutions and the reader is left to form his own judgment as to what should be done. The material for such an undertaking is certainly there.

Economic Development in Selected Countries: Plans, Programmes, and Agencies. Vol. II. United Nations, 1950. II B.1. Obtainable from H.M.S.O. xiii + 271 pp. 15s.

This report is the second in the series of studies dealing with economic development programmes in individual countries and is limited to a factual and descriptive account of the more significant aspects of national programmes for economic development and a brief survey of the governmental organisations responsible for the implementation of these programmes. The countries covered in the present volume include Australia, Bulgaria, Colombia, New Zealand, the Philippines, Puerto Rico, Southern Rhodesia, and South Africa. Although the report mentions in a general way certain of the obstacles which have been encountered in these various countries and some of the methods of overcoming them, no appraisal is attempted of the problems or progress of economic development.

Neue Beiträge zur Wirtschaftstheorie. Festschrift anlässlich des 70. Geburtstages von Hans Mayer, Vienna. Springer-Verlag, 1949. vi + 444 pp.

Twenty-five economists of 7 different countries contribute to this "Festschrift" for Hans Mayer, the 'doyen' of the Neue Wiener Schule. At least six of them concern themselves with the contribution of the Austrian School to economic theory and the essay by Dr. Dobretsberger of Graz comparing the position of Carl Menger in economics with that of Immanuel Kant in philosophy is particularly interesting. There is some rather arid discussion of price theory but one or two writers, notably Eraldo Fossati, Jean Marchal and Erich Schneider, are out to break new ground. There are three contributions in English by Theo Suranyi-Unger, Finlay Shirras and Goetz Briefs.

The reviewer is intrigued to know why Dr. Suranyi-Unger regards the term "iso-eupractical hyper-surfaces" as less clumsy than "indifference curves of welfare" (p. 53).

Readings in Business Cycle Theory. American Economic Association Collection. Allen & Unwin Ltd. 1950. xvi + 494 pp., 25s.; xvi + 718 pp., 30s.

The American Economic Association's collections of reprints, published in the U.S.A. by Blakiston's, are well known in British universities, but they have hitherto been difficult to obtain and very costly. The volumes now available are replicas of the Blakiston volumes, edited by a group under the chairmanship of Professor Haberler, and by Professors Fellner and Haley, respectively. They include most of the important articles published in English in the 1930's and a few earlier and later ones. Messrs. Allen & Unwin Ltd. promise a reprint also (at 30s.) of the collection on International Trade. Their venture will be welcomed by all teachers of economics.

The Schumpeterian System. By Richard V. Clemence and Francis S. Doody. Addison-Wesley Press Inc., Cambridge, Mass. 1950. vi + 117 pp. $2.50.

In this useful little book two of Professor Schumpeter's former students present a summary of his system and then discuss one by one the various criticisms which have been made of it. They conclude that none of the objections are significantly damaging to the model, and though parts of their argument savour slightly of logic chopping, their survey of the discussions is valuable. If their book draws more attention to Professor Schumpeter's work it will have been very worth while and of value to both undergraduates and to those economists whose speciality is not trade cycle theory.

The Theory of Economic Change. By B. S. Keirstead. The Macmillan Company of Canada Ltd., Toronto. 1948. xi + 386 pp. 25s.

Professor Keirstead has written on a most interesting subject, and one which deserves the increasing attention it appears to be receiving. It is unfortunate, therefore, that the treatment is so uneven. In his preface Professor Keirstead explains that this is so because he offers what is essentially a notebook of his thoughts combined with some attempt to supply a text-book for graduate students. The result is a work that probes into the meaning of cause, seeks some integration of the theory of location with the theory of development, attempts to base the latter on the theory of the firm, surveys on text-book level the theory of production, and so on. With so much to do it is not surprising that Professor Keirstead has not been able to go very profoundly into his various themes. This is unfortunate, for he clearly has something of value to say; and his efforts to integrate the various aspects discussed by previous writers into a general theory of change are in themselves useful.

A major theme is that innovations, which together with population growth are said to be at the heart of economic development, eventually provoke monopolistic combinations. These suppress further innovations and economic progress ceases. Now innovations may create monopoly in this way, but do they necessarily ?

Simonde de Sismondi. By A. Amonn. Zweiter Band. A. Francke A. G. Verlag. Bern. 1949. pp. 413. S.Fr.14·80.

This is the second of Professor Amonn's two volumes on Sismondi, dealing with the later of his two main economic works, the " New Principles ". It contains Sismondi's critique of economic liberalism and his theory of crises. Professor Amonn's method is to give a long introduction, then some 250 pages of translated extracts, followed by explanations and comments. German students will be grateful to Professor Amonn for having made much more accessible the work of so seminal a thinker.

New Facts on Business Cycles. By A. R. Burns. National Bureau of Economic Research. Thirteenth Annual Report. New York. May, 1950. 83 pp.

The latter part of this Report reveals that a considerable number of investigations undertaken by members of the National Bureau are already in the hands of the printers or will soon be there. It is thus a fitting moment for Professor Burns to review briefly some of the contributions that the Bureau has made to our understanding of the trade cycle. His principal stress is on the need for looking beneath aggregate data, important though they be. The discrepancy in timing between the turning-points of the different parts of the economy is well known. But one sometimes wonders how many writers on the trade cycle stop to consider that many industries are declining in periods of prosperity or expanding during depression. Professor Burns illustrates the importance of examining specific data by drawing on some of the Bureau's recent researches into the movements of profits. From the aggregate data "it appears at first blush that profits tend to favor the continuation of prosperity or depression practically until the end, . . ." (23). Closer investigation, however, reveals many firms and industries with declining profits towards the close of the boom. Are we not perhaps justified in assuming that forces are at work to make other industries doubtful about their *prospective* profits ? An interesting aspect of this process of deducing the prospects of the many from the plight of the few is that it may be useful in forecasting turning points.

Economists will eagerly await the works that are to expand on these themes. It is to be hoped, however, that the authors will not maintain the strict eschewal of explicit theory that has marred many of the Bureau's past publications.

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Imperfect Competition in Retail Trades

By Julia Hood and B. S. Yamey

In his book, *Retail Distribution*, and elsewhere[1] Mr. Henry Smith analyses the nature of competition in the distributive trades and comes to the conclusion that " taking all the facts into account it looks as if there is something queer about competition in the retail trade."[2] The " queerness " is elucidated by him in terms of the theory of monopolistic competition with assistance from the theory of oligopolistic behaviour. Applying these theories to the facts as he observes them, the conclusions are presented that retail gross profit margins and prices tend to be rigid, and that the competitive activity that is present takes the form of the competitive supply to consumers of more (and more elaborate) retail services rather than of competitive reductions of margins and prices. From these conclusions the " welfare " judgment is derived that competition in retailing produces a wasteful and unnecessary multiplication of shops, absorbs an unnecessarily large share of society's resources and leads to an economically unhealthy bidding up of the costs of distribution.[3]

Mrs. Margaret Hall in her more recent book, *Distributive Trading*, likewise refers to the " peculiar character of distributive markets ".[4] Though her analysis differs from that of Mr. Smith in some respects, the similarities in approach are greater than the differences. Mrs. Hall believes that " retail trade is inherently imperfectly competitive " and that " it is inherent in this situation that conditions of oligopoly may arise at any time ".[5] Mrs. Hall is more cautious in stating her conclusions and in pronouncing upon the welfare aspects of competition in retailing; but the general tenor of the argument indicates that she arrives at an appraisal of the working of competition in retailing which resembles that of Mr. Smith in important respects.

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[1] *Retail Distribution*, Second Edition, 1948; *Wholesaling and Retailing*, Tract No. 272, Fabian Society, 1949; article in *Store*, October 1949, pp. 27–28.

[2] *Wholesaling and Retailing*, p. 7.

[3] See *Retail Distribution*, pp. 130 and 180; and *Wholesaling and Retailing*, p. 24.

[4] *Distributive Trading*, p. 189.

[5] *Ibid.*, pp. 38 and 41.

The applicability of the theory of monopolistic competition to retailing is based upon the fact, which is not disputed, that *at any moment of time* a consumer about to make a retail purchase is neither willing nor able to seek out the shop at which he can obtain the merchandise he wants, together with the retail services he wants, at the lowest possible price (or more precisely, to seek out the shop at which the most preferred combination of merchandise, price and service is to be found). His choice of retail outlet for any particular purchase will in fact be based at least in part upon considerations such as the following: convenience of location, shopping habit, imperfect knowledge of alternatives, recollections of satisfactory treatment in the past, and preference for the retailer, his staff and his amenities. At any moment of time a particular retailer knows that he will not lose all his trade even if he raises his prices. He knows that an increase in his prices will not instantaneously deprive him of all sales and that a reduction in his prices will not instantaneously enlarge his business. In short, at any moment of time the demand for a particular retailer's services is not infinitely elastic, and therefore the market is not perfectly competitive.[1] Moreover, at any one place or in any one locality there cannot be a very large number of grocers, chemists or butchers. Hence, runs the argument, the retail market is really composed of a number of contiguous local oligopolies.

We do not wish to take issue with Mr. Smith or Mrs. Hall on the question whether retailing is or is not a textbook example of perfect competition. We agree at once that it (or for that matter any other industry or trade) has never measured up to the exact and rigorous requirements of the model of perfect competition. The main point at issue is whether the degree and nature of the imperfections are such that it is more realistic to stress the imperfections than it is to stress the competition (particularly in its price-reducing aspect) in the study and appraisal of retail markets. "In the field of imperfect competition, and especially in the search for workable adjustments, these matters of degree are of the essence of the problem".[2] We attempt to examine the usefulness of the approach and methods of analysis

[1] For this conclusion, see *Retail Distribution*, p. 127, and *Distributive Trading*, p. 36.

[2] J. M. Clark, "Toward a concept of workable competition", in *Readings in the Social Control of Industry*, 1942, p. 460. F. A. Hayek's essay, "The Meaning of Competition," in *Individualism and Economic Order*, contains a valuable discussion of this general problem.

suggested by the theory of monopolistic competition in a study of the distributive trades, though in so doing we do not pronounce upon the general usefulness of the theory. This examination we believe to be important not only because the example of retailing seems to be tailored to fit the requirements of the theory but also because both Mr. Smith and Mrs. Hall emphasise that without the developments in theory in the 1930s a realistic evaluation of retail markets is impossible. Mrs. Hall writes that the assumptions underlying "traditional economics" are "for the purpose of the economics of distribution, bad hypotheses" which "exclude what, for a given investigation, are the most important parts of reality".[1] Similarly we consider the relevance of the theory of oligopoly for an explanation of distributive markets which are characterised by unusually easy conditions of entry. Finally we look at the implications for policy of the analyses presented by Mr. Smith and Mrs. Hall.

We should agree with the conclusions arrived at or suggested by Mr. Smith and Mrs. Hall if they were confined to those retail trades in which resale price maintenance is prevalent and effectively enforced (thus setting minimum prices at which all competing retailers must sell to consumers). No elaborate analysis is necessary to show that resale price maintenance, with freedom of entry, tends to lead to too many shops, excess capacity, bidding up of costs and rigid profit margins and prices. And these conclusions would hold even if, apart from restrictions upon the retailer's freedom of pricing, retailing were perfectly competitive in the textbook sense. Though both Mr. Smith and Mrs. Hall are clearly aware of the prevalence of resale price maintenance in Britain, it is difficult to arrive at any other conclusion than that they believe that even without resale price maintenance the inherent imperfections in retailing will in many cases produce results of the same type as those produced by price maintenance. If they did not believe this, much of their analysis would be irrelevant. Mr. Smith, discussing the abolition of price maintenance, states that "where competition is based upon location and the provision of amenities and not on price and where the habitual percentage mark-up of the trade is strongly entrenched, it is doubtful if it [i.e., abolition of price maintenance] would make much difference ".[1] Both indicate that resale price maintenance " reinforces "[2] or " exaggerates "[3] the consequences of imperfections; and both point to an analogy between behaviour with price maintenance and behaviour in imperfect markets without it.[4]

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[1] *Distributive Trading*, pp. 38 and 30. See also *Retail Distribution*, pp. 113 *et seq.*, and p. 127.

The desire on the part of many retailers in many trades for resale price maintenance and the fact that retailers by themselves (without the co-operation of manufacturers to enforce price maintenance) have never been successful for long in outlawing price competition among themselves suggest that there is some important omission in the new explanation of competition in retailing. If price competition in retailing were as ineffectual and as infrequent as Mr. Smith suggests, if retailers' " private markets " were truly private, and if retailers recognised the interdependence of their actions and behaved with the restraint commonly attributed to oligopolists, it would be impossible to explain the constant efforts on the part of large groups of retailers to organise themselves and to enlist the support of manufacturers (and governments) to secure the " stability " of protected minimum gross profit margins. The efforts of many retailers (often the majority in number) indicate more cogently than can any theoretical analysis that they are aware of the responsiveness of consumers to price differences, and that they have little faith in the security provided by " differentiated " markets or the oligopolistic restraint exercised by their competitors. At the same time the fact that there are always some retailers who resist the introduction of price maintenance shows that some retailers believe that they are able to increase their sales and their profits by lowering profit margins.[5]

These facts provide strong grounds for rejecting an analysis which appears almost to exclude the possibility of price competition. It suggests that theoretical generalisations may have been based on the observation of situations where resale price maintenance exists. Even where such arrangements are not fully successful they may affect the behaviour of individual firms by providing a basis on which judgments as to a " fair " margin can be made and by encouraging or inducing a habit of co-operation.

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[1] *Store*, October 1949, p. 27.

[2] *Wholesaling and Retailing*, p. 8.

[3] *Distributive Trading*, p. 169.

[4] *Retail Distribution*, p. 180; *Distributive Trading*, p. 60. It is necessary to point out that in some places in Mrs. Hall's book a different emphasis is suggested. Thus after describing one possible situation she notes that it " is a very common one, and is especially characteristic of those parts of retail trade where price maintenance is imposed by manufacturers " (p. 60). Elsewhere (p. 58) she claims that her analysis is " realistic " by referring to conclusions drawn by Cadbury Bros. Ltd. in a study of the pre-war confectionery trade. But the confectionery trade was (and still is) covered by resale price maintenance arrangements, although these arrangements have not always been completely effective.

[5] The strength of competition and of the price consciousness of a significant number of consumers is such that resale price maintenance agreements are generally extended to prohibit indirect price cutting, which would replace the more usual method of price reduction.

The analysis which follows attempts to bring out factors which help to explain why price competition cannot be relegated to the very minor role which it appears to play in expositions relying on the overwhelming importance of imperfections. Considered in isolation some factors may appear relatively unimportant. Taken in combination they suggest that in the absence of external restraints price competition is a most important facet of competition in retail trades.

Moreover it may be noted that sentiment in favour of price maintenance has always been strong in trades in which one would expect the factors of shopping convenience and habit (and hence the " imperfection " of spatial differentiation) to be most important—that is in the so-called convenience goods trades such as the grocery, chemists, confectionery, tobacco and news-agency trades.[1]

MONOPOLISTIC COMPETITION[2] IN RETAIL MARKETS

It has been agreed above that *at any moment of time* the demand for a particular retailer's services is not infinitely elastic. The retailer is well aware of this; yet he may refrain from taking advantage of the opportunity to set his prices where, at the particular moment of time, his profits are maximised. He realises that at any particular moment of time he has a monopoly at least in respect of some customers. But he realises, probably more clearly, that unless his prices are competitive at any moment of time the attitude of many of his former customers may change adversely for him. Some customers do learn about or discover price differences; shopping habits are not unshakeable; and housewives are not inflexibly tied for reasons of convenience to a particular retailer or retail centre. Also, it is not necessary to postulate that *all* consumers in the long run (which here means a few weeks or months at most) are mobile in their shopping habits. As long as some change their patterns of shopping in response to differences in price the momentary inelasticity of demand for a particular retailer's services is relatively unimportant from the point of view of his price policy. Even if only a few customers of each retailer are mobile together they may provide a profitable opportunity for any retailer who is prepared to sell at more attractive prices.

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[1] If evidence of this is necessary an example from Canada may be cited. In an enquiry into the activities of the Canadian P.A.T.A. it was urged that " the druggist who benefits mostly by the adoption of the principles of the P.A.T.A. as far as price maintenance is concerned is the man who operates a store in the smaller cities and towns and in those portions of the larger cities most removed from the large downtown stores. It is also contended that the Association aids the smaller cities, towns and country districts as against the competition of the department stores, the chain stores, and the mail order houses." *Investigation into the Proprietary Articles Trade Association*, *Report of Commissioner* (*Combines Investigation Act*), Ottawa, 1927, p. 23.

The history of resale price maintenance arrangements and their prevalence in countries in which they are not checked by legislative measures provide the basic empirical evidence for our general conclusions and for much of the detailed analysis. The contents of discussions in British retail trade journals, particularly before and during the commencement and early growth of resale price maintenance practices, suggest strongly that our analysis deals with important forces influencing the nature of competition in freely competitive retail markets.

[2] By " monopolistic competition " we mean here the case of differentiated products with a large number of competing suppliers. Our argument is generally couched in terms of changes and variations in price, partly because Mr. Smith particularly stresses that price competition is weak in retailing, whereas we believe that adjustments in price are the most important manifestation and instrument of competition in retailing. We are aware that the theory of monopolistic competition embraces competitive adaptations of the product. We are aware, too, that Professor Chamberlin's definition of " monopolistic competition " in the broad sense covers more than we have included in the more restricted meaning of the term.

At the same time the sluggishness of the buyer in most retail markets (as contrasted with the buyer's postulated agility in perfect markets) does give each retailer some little time in which to adapt his prices, etc., to competitive changes. For this reason retail pricing is an art requiring some skill and flair, in contradistinction to the pricing automatism postulated for perfect markets. But this difference in behaviour in perfect and retail markets does not warrant the view that it is apposite to stress the imperfections in retailing. The imperfections would be significant only if retailers aimed at maximising their profits in successive "short runs" irrespective of long-run repercussions (i.e., irrespective of the effects of a policy adopted in one short period upon the results of later short periods). There is no evidence to suggest that retailers in general adopt such a policy, and there is ample evidence that some retailers adopt the opposite policy of planning their prices with long-run consequences in mind, even to the extent of accepting initial losses as the price of long-run success.[1] The emphasis on "goodwill" in retailing circles suggests that long-run considerations preponderate in the formulation of retail price (and service) policy. The conclusion is that the long-run, and not the short-run, demand is relevant for the retailer's marketing policy, and that the former is much more elastic than the latter.

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[1] See, for example, M. A. Adelman, "The A. & P. Case", in *Quarterly Journal of Economics*, May 1949.

The exceptions to this general conclusion illustrate their own relative unimportance and the special conditions that must be present. There is Marshall's example[1] of shops catering for tourists, living off a never-ending stream of short-lived customers so that the long run looks after itself. Another example is provided by the monopoly position of the retailer of chocolates, etc., in a theatre or sports stadium, where the mobility of the customers is restricted and where the retailer is assured of a clientele in the long run. A further example is the "exclusive" retailer to whom any serious enlargement of his clientele may damage his main asset and for whom high prices may provide a mark of distinction. It is significant that retailers in these exceptional circumstances are not clamorous for the protection of resale price maintenance—"exclusive" retailers, in fact, tend to avoid price-maintained goods partly because their prices are fixed and their margins often inadequate for their type of trade.

The time lag in the response of consumers to inter-shop price differences means that the retailer who wishes to expand his sales may have to adopt a variety of methods to make his shop and prices known to potential customers. In a perfect market, of course, such dissemination of information and persuasion would be neither necessary nor profitable. The presence of "sales promotion" activity by entrepreneurs is generally regarded as a proof or a symptom of the existence of imperfections. This interpretation is misleading; for it is the essence of competitive sales promotion activity that it widens the consumers' range of knowledge about the alternatives open to them, and in many cases provides the jolt to shake consumers out of settled habits. The sluggish responses of the consumer provoke activity on the part of some retailers to accelerate and sharpen the responses. The result is that the demand for the individual retailer's services is more elastic than it would have been otherwise; in addition competitive sales promotion has an "unsettling" effect on the market by constantly undermining the bases of market fragmentation.[1]

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[1] Alfred Marshall, *Industry and Trade*, 3rd edition, p. 811.

CHANGES IN SUPPLY IN RETAILING

We have considered, above, dynamic change on the demand side of the retail market, which tends to reduce the importance to the retailer of the imperfections present in the market at any moment of time. Turning to changes on the supply side it is necessary to look at changes of technique in retailing and at conditions of entry into retailing.

During the past fifty to a hundred years there have been significant changes in the technique of retailing. Co-operative shops, department stores, multiples, variety chains, mail-order houses and self-service shops are obvious examples where an existing type of retail service is provided more efficiently than before, or where a new type of retail service is offered to consumers. Both Mr. Smith and Mrs. Hall indicate the nature of these changes. But Mr. Smith minimises the extent to which these changes have increased price competition in retailing. He notes the changes, but observes that "while all these are evident and obvious examples of adaptations of technique which have been adopted in order to lessen the cost of distribution *to the retailer*, we still lack proof that, except perhaps in the case of co-operative societies, there is a direct response to the demands of the consumer expressed in terms of price elasticity".[2] It is not easy to imagine what sort of proof is required short of the discovery of the retailers' (*ex ante*) demand and cost schedules! Here it is sufficient to point out that the introduction of changes in retailing has been accompanied by large-scale changes in the shopping habits of consumers, by the new-comers stressing the appeal of lower prices and by vigorous (though usually impotent) complaints of existing retail firms about the price cutting of the newer firms.[1] The conclusion is irresistible that the proof which Mr. Smith claims to be lacking is to be found in the record of history. Further it should be remembered that while we have mentioned changes in techniques associated with new types of retail organisation, in fact there is constant experimentation in retailing which produces a large number of successful small changes.

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[1] The practice of "leader" or "loss leader" selling may be cited as an example of sales promotion activity. Because of the sluggishness of consumers a retailer may prefer to offer large price reductions on a few special lines rather than small price reductions generalised over his entire assembly of merchandise. The former reductions may be more readily obvious to consumers than the latter. The *minimum sensibile* in respect of price differences may be quite large in some cases, and if price competition is to take place at all it may have to take the form of more dramatic but selected price cuts.

It would be seriously lacking in perspective to give too much weight to "leader" tactics in an analysis of retailing. Its role in the history of resale price maintenance has certainly been grossly overstated.

In general there is no economic reason why the different goods sold by a retailer should carry the same percentage margin of gross profit. Once this is granted it becomes difficult to distinguish leader selling from "genuine" price competition.

[2] *Retail Distribution*, p. 179. Mrs. Hall's comment that "owing again to the peculiar character of distributive markets, important influences have militated against the evolution of more efficient forms of organisation and the evolution of more efficient techniques of purchase and sale" (*Distributive Trading*, p. 189) is more difficult to assess because of its vagueness. We would endorse it without reservation if it meant merely that one cannot have a department store or supermarket in every hamlet of a hundred souls, or that one does not find a help-yourself dress shop in Bond Street or the Rue de la Paix.

Mr. Smith's argument that innovations may confer benefits upon the innovator and not on consumers seems relevant in one situation only: that is where (1) the innovation is one that provides an existing service at a lower average cost, (2) the innovator's marginal costs remain unaltered for the relevant range of outputs, and (3) the innovation is introduced by an established firm. This situation appears to be a rather special and unimportant one.

A feature of innovation in retailing is that successful innovations may readily be imitated by competitors without institutional hindrances, such as are contained in the law relating to patents and trade marks, and which are important in other industries. The speed with which novel ideas (in matters such as display, advertising and pricing) in retailing are taken up by competitors is remarkable.[2] Imperfections based on differentiation in service or appeal tend to be short-lived, and are not likely to influence the innovators' price policies appreciably. The assumption of a long-term private market has little basis.

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[1] This argument can be considered from another viewpoint. It has often been argued that the development of cost-reducing techniques has been hindered where the innovator is prevented from reducing his selling price. Thus Mr. A. J. Sainsbury says that the development of self-service in the United States "might have been quite different if there had been a resale price maintenance policy throughout the States similar to that in Great Britain at the present time". (*The Management of Multiple Shops*, British Institute of Management, 1950, p. 25.) See also the remarks of Mr. John Ryan in *Management Implications of Self-Service Stores*, British Institute of Management, 1950, p. 20.

[2] The same imitativeness is found, though to a lesser extent, in the location of retail outlets. It would require a degree of shopping mobility greater than exists at present to make imitativeness with respect to location as complete as it is in other directions. If such "imitativeness" were forced upon retailers (e.g., by building and planning restrictions) the consumers would suffer a loss of convenience and be worse off, even though competition might appear to be more "perfect".

Even if there were no changes in retail techniques and no changes in the preferences of consumers for different kinds of retail services, the entry of new firms into the distributive trades would be a constant disturbance to stability in gross profit margins and private markets. With few exceptions[1] entry into retailing is easy, as the new entrant requires little capital and no professional qualifications. The capital is often provided by wholesale houses in competition with one another, and the deterrents to entry are further weakened by the relatively non-specific nature of the capital resources necessary in retailing. New entrants into retailing often act upon over-optimistic estimates both of their ability as retailers and of the profit potentialities in retailing. Certainly new entry into retailing is not confined to innovators and the (profit-equilibrating) entry of firms into trades or localities in which abnormally high rates of profit are being earned.[2] New-comers open shops even if they are aware that existing retailers are *not* making abnormal profits. They merely believe that they have something to offer consumers on such terms that they will be able to produce profits for themselves—and frequently they are mistaken.

With a more or less continuous flow of new entrants into a retail trade it does not seem useful to discuss retail prices and gross margins as they would be if the trade were in long-run equilibrium (i.e., with supply adjusted to demand and firms earning " normal " profits)—which is the approach adopted by Mr. Smith and Mrs. Hall. Our view would be appropriate even if the inflow of new retailers is matched by a somewhat delayed outflow of retailers who have failed : for then the market would proceed through successive periods of disequilibrium, each tending towards but never reaching a (probably changing) position of equilibrium. In these periods of disequilibrium gross profit margins are likely to be affected. It seems fashionable to believe that gross profit margins will be adjusted upwards to accommodate the excessively large number of retailers. It appears more plausible to us that price competition will be accentuated, if only because the newcomers have to provide some inducements to consumers to change their shopping habits and have to adopt some methods of making known their presence. The offer of attractive prices is the obvious method, except where retail prices are maintained. Compared with advertised prices and bargain offers the offer of improved services by a new-comer is a poor inducement to consumers to try a new shop. At the same time the struggles for liquidity on the part of unsuccessful retailers attempting to postpone or to avoid failure, and their final exit, are likely to unsettle the market.

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[1] The exceptions include cases where the issue of necessary licences is limited or where the necessary premises and equipment are expensive and specific. In consequence such exceptional trades [e.g., liquor trade, the retailing of films (exhibition), and petrol filling stations] are frequently organised along lines quite different from those in the majority of retail trades.

[2] Mrs. Hall appears to confine entry to these situations. See *Distributive Trading*, pp. 35, 49 and 57.

Oligopoly in Retailing

Recognition of the fact that there is a limit to the number of shops which can be located in any one area has led both writers to rely to some considerable extent on a simple theory of oligopoly for an explanation of the apparent weakness of price competition. Mrs. Hall explicitly states that " the retail market, like all imperfect markets, readily gives rise to conditions of oligopoly ",[1] while some of Mr. Smith's most important conclusions are apparently based on the implicit assumption of the importance of the " small group " case.[2]

Oligopolistic interdependence, it is implied, leads in general to the following sequence of events. There will be an " irresistible incentive to the proscription of price competition by some form of agreement among [existing] sellers, whereupon competition in terms of a variety of so-called ' services ' takes its place ".[3] Although prospective entrants must take account of the fact that they will have to share the market with existing retailers,[4] not all newcomers will be deterred. Existing retailers will lose some of the economies of scale, the new entrant will be unable to expand to his most economic size. The costs of all in the locality will rise and prices will probably rise to cover the new level of costs.[5] If such entry continues a snowballing of costs and prices will result.

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[1] *Distributive Trading*, p. 41.

[2] *Retail Distribution*, pp. 33, 129. Although Mr. Smith bases much of his argument on the theory of monopolistic competition, he stresses the fear of retaliation. Much of his discussion is concerned with competition in a " neighbourhood " or " locality ".

[3] *Distributive Trading*, p. 61.

[4] *Retail Distribution*, p. 25; *Distributive Trading*, p. 35. Mrs. Hall does not explicitly carry the argument further.

[5] Mr. Smith admits that " increased overhead costs . . . can only increase prices if they lead to tacit or formal combinations or agreements ". *Retail Distribution*, p. 189.

Much of the argument is cautiously advanced. However, the reader could hardly be blamed if he were to gain the impression of small groups of shopkeepers living in mortal fear of one another, acting in a manner best calculated to invite new competition, yet possessed of the marvellous foresight and restraint necessary to enable them independently or collectively to light upon price policies which allow an increasing number of them to live in comfort.

Possibly much of the emphasis on the oligopolistic nature of the retail market derives from the simplifying assumptions often utilised in theoretical analysis of the retail trade. Attention has been focused on competition inside small and well defined market areas. While such analysis serves to isolate certain important considerations it cannot provide the sole basis for a realistic explanation of situations where markets are not so strictly delimited.

The inhabitants of a particular street or village, suburb or small town are not deprived of all contact with the world outside. Even where distance appears to afford a considerable measure of protection, transport costs are gradually being reduced by the advent of different forms of retailing and by changes in social habits. The travelling shop, the mail order firm or department, and telephone shopping, all reduce the significance of distance. In any case, except for small and isolated centres of population, a large number of shoppers are able to choose from amongst several retailers with only minor differences in the degree of inconvenience to themselves. New retail firms generally locate themselves where older shops are already established; they do not place overmuch value on a unique location.

This is not to deny that the scatter of retail outlets in an inhabited area is basically affected by the nature of the goods sold and the pattern of consumers' shopping behaviour; it merely suggests that particular retailers are not to any significant degree insulated against the pressure of price reductions originating outside their immediate neighbourhood.

Perhaps we have over-emphasised this aspect of the location problem. Possibly it was the intention of these writers to concentrate attention not so much on isolated firms or on isolated groups of firms as on the interdependence between such firms and groups of firms. It is somewhat difficult to reconcile the continuous variability of clientele which such interdependence presupposes with the " private markets " and " circles of customers " which figure rather prominently in the expositions of Mr. Smith and Mrs. Hall. If it is " possible for any retailer to raise his prices above those of his neighbours to an appreciable extent before losing sufficient customers to them for the defection to outweigh the increased revenue from the remaining ones ",[1] there seems to be no justification for the statement that " probably the strongest motive behind the stability of retail prices is the desire to avoid retaliation and ' cut-throat competition ' ".[2] Since we must exclude the one hypothesis or the other let us concentrate on the ' inevitable ' results of the individual retailer's recognition of the danger of retaliation. Will it in fact lead to " a marked tendency to organise common standards between themselves " ?[3] Should we in fact anticipate widespread tacit or formal agreements leading to the adoption of ' conventional mark-ups ' ?

There is little justification for the assumption that all retailers are possessed of the timidity, altruism or foresight necessary to persuade them to " live and let live ".[4] There are some who choose to live dangerously or to follow their own selfish ends. Some retailers feel that price competition is the most effective method of increasing sales, even though temporary loss may result from such a policy (and it need not do so). Even if we suppose that some low-cost retailers are reluctant to initiate price cutting, can we also assume that they are confident that no other trader will lead the way ? A reputation for cheapness is often very desirable. Can a firm take the risk that others may gain the credit for being the pioneers in this field ? In an industry such as retailing no one seller can rely on the moral fibre of his competitors. He cannot trust his rivals to refrain from cutting prices merely because they believe that such a policy may spoil the market for others. If cost conditions enable him to follow a policy of undercutting his rivals the trader may feel obliged to put it into effect.

We can pursue the question still further. Let us assume that all retailers desire to avoid price cuts, and that they are all confident that the same attitude prevails amongst their fellows. What price policy will commend itself to the individual seller? He will follow the "price ruling on the average for the class of goods concerned". There is, however, little reason to suppose that there will be a well defined price which he can adopt: and this problem of choosing which price to follow will confront every firm. In any case some one retailer must take it upon himself to set the standard for the rest, and there would appear to be considerable scope for misapprehension as to his identity.

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[1] *Retail Distribution*, p. 129.
[2] *Ibid.*, p. 33.
[3] *Ibid.*, p. 33.
[4] *Distributive Trading*, p. 42.

The suggested solution is that each seller will fix a price sufficient to cover the costs of doing business. Being content to obtain a reasonable profit by catering for his existing clientele he will set margins sufficient to cover the costs of carrying out his present functions. But retailers vary in size and efficiency; they offer different services to suit the tastes of different types of consumer. Overheads such as rent may vary considerably within a small area. It is unlikely that the desire not to initiate active price competition will lead intuitively to the setting of the same initial mark-up by all sellers. Even if such a result were likely it would not necessarily lead to an identity in the final price. Cost price is not an independent factor of given magnitude: it may vary according to the quantity bought, to the time of purchase and to the channels utilised, and retailers are well aware of this fact. Good buying is one of the attributes of the successful retailer and varying degrees of skill in purchasing will lead to varying cost prices. The adoption of identical percentage or absolute margins will merely accentuate the effect of this source of divergence in price. Even so the analysis has been over-simplified. It has not taken account of the fact that we are dealing with a heterogeneous collection of multi-product firms selling varying combinations both of goods and services. There still remains the inherent difficulty of cost accounting in the multi-product firm. We agree that in the conditions of perfect competition assumed in strict theory different allocations of overhead costs could not exist for any length of time: the pressure of competition would speedily eliminate them. In an industry where so many possibilities of output combinations exist it seems hardly possible that identical prices should arise independently of any pressure from competitive forces.

On the whole it seems unlikely that even with the best will in the world retailers should arrive at some quasi-agreement which automatically ensures that all prices should be the same, or even that they should for long remain in the same relationship to one another. It is difficult to see how any retailer could so order his price policy that his good intentions were obvious to all, and protestations of good faith are likely to be singularly unconvincing when his prices are manifestly below those of some of his competitors. Nor is the problem solved by suggesting that some more formal agreement will result. The factors already considered will provide ample opportunity for disagreement over uniform prices; while a formal recognition of permitted price differentials, even if it were practicable, would be in need of constant revision and in constant danger of collapse. It would appear that the adoption of uniform mark-ups or prices is not inherent in the typical market situation in retailing. Indeed we can go further and state that insuperable difficulties attend any independent attempt to maintain such a system.

One more possibility deserves consideration. Let us imagine with Professor Adelman[1] that two stores in a particular locality have reached " some empirical position of live and let live ".[2] " There is a constant temptation to cut prices toward [the] low cost of additional business . . . But open price cuts are futile, for they will be matched within the hour . . . Customers are not price conscious, anyway. Better to offer additional services . . . . As both do so, costs rise, and margins and prices are raised to cover them . . . The temptation to cut prices grows, but the higher the cost structure the more disastrous this can be." What is the probable ending to this " parable of monopoly behaviour " ? " Some low ruffian, in search not of a reasonable but of a large profit, opens a super-market nearby, engages in strenuous price competition, and puts them both out of business . . . This is in microcosm, the rise and decline of oligopoly heaven."

Existing firms cannot afford to ignore the possibility that innovators will destroy their carefully preserved margins. If they become complacent or forsake price competition for competition in services then some other type of trading unit may encroach upon their market. An understanding or agreement peaceably to share the market will avail them little if " their " market is not clearly defined and may disappear under their very noses. They may not wish to invoke price competition against one another; competition from outsiders may force them to do so.

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[1] M. A. Adelman, " Effective Competition and the Antitrust Laws ", *Harvard Law Review*, Sept. 1948, p. 1297.

[2] *Distributive Trading*, p. 42.

Competition from new firms is not the only source of danger to the retailer who relies on traditional mark-ups and non-price competition. Retailers in other trades can take up items carrying remunerative rates of mark-up as profitable side lines. The flexibility in the selection of merchandise open to any one retailer (unless impeded by restrictive arrangements) is a potent contribution to price competition in retailing,[1] and the reactions of the " bona fide " dealers to such " dabbling " testify to the force of this kind of competition.

The truth seems to be that many retailers would welcome such a system of agreed margins or prices. In practice, however, they are unable to enjoy the benefits of such a system unless there are collective agreements introducing sanctions which have a much greater deterrent effect than the mere fear of retaliation to price competition. Resale price maintenance is not the natural outcome of an oligopolistic situation in an atomistic industry. The support for such arrangements illustrates in itself the necessity for outside aid due to the impossibility of procuring and maintaining the voluntary loyalty of all distributors.[2]

A Note On Welfare Implications

Insistence on long-term imperfections leads Mr. Smith to conclude that, quite apart from the effects of resale price maintenance, there will be excess capacity in retailing accompanied by a wasteful bidding up of costs leading to the absorption of an unnecessarily large share of the country's resources in distribution. Mrs. Hall accepts this " waste " as part of " the facts of life " since " consumers are geographically dispersed and they *prefer* various types of retail service to others ".[1] We agree with Mrs. Hall's attitude because we believe that consumers are competent to judge between retailers and that in the absence of resale price maintenance desired alternatives would be available on competitive terms.

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[1] " Super-markets handle glassware, magazines, toilet goods and cosmetics, nylon stockings and electric toasters. The drug stores complain that grocers sell aspirins, but who took the soda fountain business away from the ice-cream parlors, the boxed candy trade away from the confectioners, and packaged stationery away from the stationers? Auto accessory stores sell radios, refrigerators, washing machines, sports-jackets, work clothes, men's and boys' socks, house furnishings and electrical supplies. Filling stations sell coffee makers, razor blades and soft drinks." V. Lebow: " Our Changing Channels of Distribution," *Journal of Marketing*, Vol. XIII, July 1948, pp. 12–13.

[2] This view is supported in the recent pamphlet on resale price maintenance published by the Fair Prices Defence Committee. Proposals for the abolition of collective resale price maintenance are viewed with alarm, since not only can retailers not agree amongst themselves as to the prices to be set, but even the co-operation of individual manufacturers is not a sufficient condition. " It is quite impracticable, in most trades, for individual producers to operate their own systems of price maintenance . . . previous attempts have proved to be ineffective."

Mr. Smith's argument is based on different premises. He believes that there are differences in the nature and sources of imperfections and that these are significant for welfare judgments and policy decisions.[2] Thus he notes that " consumers' preference between retailers may be rational or irrational ".[3] Once this step has been taken it is easy to conclude that at least some of the imperfections are not immutable facts, but aberrations arising, for example, out of " the amateur status of the retail purchaser ",[4] and that these are likely to be exploited by competing retailers, particularly if consumers are not considered to be responsive to differences in prices at different sources of supply. The result is that competition leads to the supply of " unnecessary " services that are not " really " desired by consumers, and would not be supplied if the market were " perfect ". Consequently any proposals for reform should be judged by inquiring " either what its effects will be upon the ' perfection of the market ', or how far it promises to reproduce the effects of a perfect market by means of some other method than that of ' free consumer's choice ' ".[5] And lest any reader may wonder how a perfect market will work in retailing, criteria for proposals for reform are indicated more precisely : " Do they promise to lower retail margins to the consumer, and do they propose to check the drift of economic resources into retailing? "[1] Austerity in retailing is apparently to maximise the consumer's "genuine" satisfactions. By these criteria the reform of retailing should present no difficulty—except to the consumer. Perhaps Mr. Smith did not intend to go as far as this: but his argument tends in this direction, and it is not unlike the general tenor of the arguments of others who are concerned about the wastes of less-than-perfect competition.[2]

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[1] *Distributive Trading*, p. 170. See also p. 65. A different interpretation is suggested on pp. 70n and 168.

[2] Professor Chamberlin does not provide the precedent for this line of reasoning. See his discussion on the ideal output in *The Theory of Monopolistic Competition*, pp. 93–4 (of fourth edition). Indeed most of our criticisms are not directed at the " new theories " but at the particular use made of them.

[3] *Retail Distribution*, p. 127. " This dichotomy cannot be strictly maintained on logical grounds . . . But on ' common-sense ' grounds the line is easy to draw, even if it is an imaginary line."

[4] *Ibid.*, p. 180.

[5] *Ibid.*, p. 181.

SUMMARY

It is not useful to rely upon an essentially static and long-run theory of monopolistic competition to explain the economics of retailing. It is not realistic to argue in terms of long-run stability in consumers' preferences, or to assume that entry is of an equilibrating kind and that innovations are of the peculiar variety implied by Mr. Smith. The use of an over-simplified theory of oligopoly is equally unrealistic. Freedom of entry and chain linking of markets make it unwise to rely upon a mere counting of numbers. Tacit or formal agreements are not the simple arrangements which some theories suggest.

There may be some serious criticism of sales promotion activity in retailing. But this criticism should not be based on the charge that sales promotion is merely a symptom of market imperfection and that it strengthens market imperfection, or that it is an unnecessary cost of distribution. Any action designed to increase the perfection of the market is likely to be costly (unless the perfection is spuriously attained by denying some alternatives or potential alternatives to consumers). It is possible that the method of competitive selling activity may be more costly or less effective than other methods: but this is quite a different question.

Up to a point we agree with the view that market forces in the distributive trades may tend to a condition of "excess capacity". But we do not agree that this excess capacity is a feature of imperfect retail markets in equilibrium. Rather the excess capacity in retailing under competitive conditions is a consequence of the ease of entry into the distributive trades and a sign of disequilibrium. It leads to lower prices, and, in a sense, the costs of maintaining it are borne by the retailers themselves in the form of lower returns than were anticipated.[1] It appears to us that the "excess capacity" in retailing is a safeguard of the interests of consumers in that it tends to increase competition, particularly with respect to price. It is not a burden upon consumers from which they should necessarily be liberated.

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[1] *Retail Distribution*, p. 182.

[2] For example, see the *Report of the Committee on Milk Distribution*, June 1948, especially paragraph 178.

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[1] The "imperfect foresight" of some new entrants is clearly incompatible with perfect competition. But this type of imperfection does not form part of Mr. Smith's and Mrs. Hall's arguments.

A Regional Analysis of British Import Prices[1]

By K. L. Kinsman

There has from time to time been some controversy over the effect of the U.K.'s buying policy in recent years on the prices we have had to pay for our imports. In particular, it has been asserted that the exigencies of dollar scarcity have compelled us to buy in soft-currency markets at a higher sterling price than we would have had to pay to dollar countries.

The controversy has been rendered somewhat historical by devaluation. It still seems worth while, however, to attempt an analysis of British import prices during this period, with the object of distinguishing between high-cost and low-cost sources of supply—cost in this context being equivalent to price, defined as value divided by quantity. A secondary objective has been to see whether the price dispersion of British imports has increased during the war.

I. Method

Technical details have been relegated to an appendix, but the method used was briefly as follows:

The countries of supply were classified into a manageable number of regions. The unit value of various commodities was then calculated for each primary region and for all combined. The price for each primary region was expressed as a ratio of the general average price, and a weighted price ratio for a number of commodity groups, and for all imports, was obtained.

To do this a Paasche type index was constructed for 1938, 1947 and 1948 with the overall average price as a base in each year. For convenience the word "index" has been used though the result is not a time series. A comparison between different years, or between primary regions in any year, should therefore be made with caution.

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[1] Much of the computational work for this investigation was done by Mr. Howard Rees. Mr. Rees was at one time to have written a section on quantitative changes in the sources of our imports, and his collaboration has been considerable. I am also deeply indebted to Professor R. G. D. Allen for his technical advice and encouragement. I need hardly add that I am myself solely responsible for any technical flaws that may have arisen in the application of that advice.

II. Prices

The price ratio for the Sterling Area was well above the average for the three main regional divisions in 1938, but it has been much lower since, especially in 1947. Europe, by contrast, was well below average in 1938 and above average in 1948. The Western Hemisphere was below average in 1938 and 1948 but above it in 1947.

The range between these main overall price ratios has widened since the war as the following table shows; bearing out the thesis that prices have diverged.

	Range
1938 ..	4
1947 ..	8
1948 ..	5

These general conclusions mask very divergent movements within the main regions. I pass on to a more detailed analysis.

Sterling Area

Of the four primary regions, the Southern Hemisphere accounted for nearly three-quarters of the total sterling index. The chief imports are Australasian dairy produce, meat, cereals (except in 1947), and sugar. Decisive factors are:

1. The high cost of dairy produce before the war and the low cost since. This trend is borne out by a comparison of New Zealand butter and cheese with Danish butter and U.S. cheese.

2. Changes in the relative price of sugar. The main determinant was the price of Cuban sugar which was three-fifths of British West Indian in 1938, but above it in 1947. The price of Cuban and Dominican sugar fell absolutely in 1948, while sterling sugar (except Mauritius) continued to rise.

3. The low cost of Australasian meat in 1947, rising in 1938. An important influence was the purchase in 1947 of a large quantity of North American beef at more than double the price of the Australasian product. Imports from the U.S. were negligible in 1948, and the price of Argentinian beef dropped, sending up the relative price of Sterling meat.

Another factor was the substitution of high-priced New Zealand lamb for Australian.

4. The high cost in 1948 of large quantities of cereals (chiefly wheat) from Australia. The loss compared with 1938 almost eliminated the gain from low-priced dairy produce. The amount imported in 1947 was too small to affect the overall index much.

Summary

The relative movement of the overall ratio is borne out by counting the number of commodity groups where the Sterling ratio was below average :

1938	..	2
1947	..	6
1948	..	5

The Sterling Area was a high-cost area before the war, but a low-cost area since, with a rising tendency in 1948. The same broad conclusion holds for the Southern Hemisphere, and in the Dependent Territories the tendency was even more pronounced. The reverse is true of Eire.

The figures for Asia are too small to be truly representative. Tea, rubber, and wool have been excluded from the index for reasons given in the appendix. Indications are, however, that prices have been well below average throughout, with a smaller price advantage since the war than in 1938.

Western Hemisphere

The index shows that as far as price is concerned, there is no such thing as a Western Hemisphere, a Dollar Area, or an American Account group. In terms of 1938 prices, the five primary regions could be classified as follows :

High	..	North America
Low ..	..	South America
Very low	..	Central America

The distinction vanishes in the post-war period, when the U.S.A. and the Argentine have approximately maintained their pre-war position, but the ratio for the rest of the American Account has risen sharply. The ratio for the rest of South America has fallen very low and that for Canada below average.

Canada

Canada was our largest single supplier in 1948. Considering only those commodities included in the index, we imported more from Canada than from the Southern Hemisphere, the O.E.E.C., or the American Account group. In 1938 by contrast, Canada exported less to this country than the Southern Hemisphere, the U.S.A., or each O.E.E.C. Sub-Group separately.

Our imports from Canada are quite varied, but since the war the Canadian index has been dominated by the very large imports of low-priced cereals, especially wheat. Cereals accounted for over half the index in 1948, compared with just over a third in 1938.

There has been no general trend in the movement of relative prices. In fact, the ratios of two-thirds of the commodity groups have " crossed the Equator " one way or the other since the war—three upwards and three down—but in 1948 the relative prices fell below the 1947 prices—a general trend in the Western Hemisphere regions with the exception of the Rest of South America.

There seems to be little doubt that, in general, Canada has been transformed over ten years from a high-cost to a low-cost supplier.

U.S.A.

In 1938, tobacco accounted for just over a third of the total U.S. index, the remainder consisting almost entirely of cereals, petroleum, and cotton. Since the war, a much broader variety of goods is represented, especially in 1947, when substantial quantities of meat, cheese, timber and metals were imported.

The overall price index has fluctuated as sharply as that of the Sterling Area, but in a contrary direction. The ratio is high throughout, especially in 1947, but somewhat below pre-war in 1948. A major causal factor is the fluctuation in quantities.

The large rise in 1947 was chiefly due to :

1. Large imports of very high-priced meat and cheese ; and to a lesser extent, timber.

2. The rising relative prices of U.S. cereals, due mainly to the low price of Canadian cereals.

3. The rising relative price of U.S. cotton.

In 1948, imports of meat and cereals were virtually eliminated, cheese was halved and timber reduced to a third. Sharp rises in the price of medium staple cotton from Brazil, Egypt, and British East Africa were accompanied by increased imports, while the U.S. prices rose only slightly. These movements were partly offset by a rise in the relative price of U.S. motor spirit.

To sum up, we could with advantage have taken more wheat (instead of Australian and Argentinian), more cotton, and more tobacco from the U.S.A., but less cheese, timber and petroleum—meat having already been eliminated.

Rest of the American Account

The dominant factor is sugar—about half the index in 1938 and about four-fifths since the war ; due to greatly increased imports of sugar rather than to a reduction on other commodities. In 1947, Cuban sugar stood at nearly six times its 1938 price, but fell a little in 1948. The price of hemp from the Philippines was exceptionally high in 1947, but more normal the following year.

All five commodity groups were below average in 1938. Since the war Venezuelan petroleum and Bolivian tin have remained below average and hemp has risen above it. Sugar was above average in 1947 and Mexican lead in 1948. This region clearly reverses the experience of British dependent territories.

South America

In 1938, the relative prices of these two primary regions were broadly similar. Cereals were generally high. Argentine maize is an exception. Meat—mostly lamb and tinned beef —was low. Other commodities, except Chilean hemp, were below average. The two major groups accounted for about a third each of the total index. This was increased after the war to three-quarters between them.

The story of the Argentine price ratio is one of cereals, not meat. We imported a substantial quantity of wheat from the Argentine in 1947 (9 per cent. of our total wheat imports by volume or 15 per cent. by value) and the bulk of our maize—both at high prices. In 1948, Argentine wheat imports were cut by three-quarters, but the quantity of maize was larger. The wheat price in 1938 was higher than that of any other producer and it rose more steeply up to 1948 than either Australian or U.S. Argentine barley is lower throughout than Australian.

Maize rose from less than the U.S. price in 1938 to above it in 1947, and still higher in 1948. But in 1948, over half our barley and a substantial quantity of maize came from the Soviet Union at still higher prices.

The net result is that the Argentine cereals ratio, above average in 1938, rose steeply in 1947, more than wiping out the price advantage in meat; but it fell below average in 1948.

The South American meat ratio is low throughout. Beef was dearer than sterling in 1938, but lamb was cheaper. The difference was accentuated by 1947, but in 1948 prices became more favourable in both commodities.

In 1938, about half the index for the Rest of South America consisted of cotton from Brazil and Peru. Most of the remainder was electrolytic copper from Chile, and meat. By 1948, cotton accounted for over two-thirds of the total, with copper imports very much reduced.

It seems fair to describe South America as a low-cost region, particularly since the war. This general conclusion is modified by the importation of high-priced Argentinian cereals in 1947 and the high cost of post-war petroleum from Peru. It is confirmed by the greatly increased imports of cheap cotton from Brazil.

Europe

Europe is divided naturally into Eastern Europe and the O.E.E.C. and the latter group again into "Bilateral" and "Transferable". The latter division was used at an early stage when it was thought to have some significance. It has been retained because it helps to make the O.E.E.C. group more manageable.

Both Eastern Europe and the rest supplied timber and wood pulp, textiles, and petroleum. Eastern Europe is lower throughout, but less so since the war. It was undoubtedly a low-cost region before the war—below average in all commodity groups. Since the war it has been below average only for timber of which large quantities at high prices have come from North America. In 1947, timber accounted for three-fifths of the East Europe index, but in 1948 two-fifths consisted of high-priced cereals from the

U.S.S.R. Clearly the change is from a low-cost to at least an average area.

Meat and dairy produce, mostly from Denmark, accounted for half the O.E.E.C. index in 1938. Petroleum from the Dutch East Indies was the third largest group. By 1948, petroleum was by far the largest group, accounting for a third of the index. The stability of the petroleum ratio in a large measure explains the stability of the Bilateral overall ratio. This is reinforced by the stability of Scandinavian timber and wood pulp. All are somewhat below average. The remaining groups are small in weight but their price movements have generally been unfavourable. The Bilateral area is average throughout, with a rising tendency in the post-war years.

About four-fifths of the Transferable index consisted in 1938 of dairy produce and meat. In the post-war period, this has fallen to about half. Both these commodity groups were well above average, as was Belgian flax. The remaining groups were below average, but the overall ratio was high.

After the war, the relative price of Danish dairy produce rose sharply. In the textile group large imports of cheap cotton from the Congo began to outweigh the high price of Belgian flax. The three low-priced groups increased in weight (to 40 per cent. in 1947) but the price of metals rose, especially electrolytic copper in 1947.

The Transferable region is undoubtedly high-cost. Since the war the relative prices of its exports to this country have hardened, but there has been increased buying of low-priced commodities.

Rest of the World

This can be dismissed in a few words—cotton from Egypt and the Sudan; petroleum from Iran and Palestine; iron ore from Spain. This is a high-cost region and has become increasingly so since the war, owing to the steep rise in the price of Egyptian cotton.

III. Dispersions

There does not appear to have been much change over the period in the dispersion of overall price ratios. If anything, the tendency is towards a smaller dispersion since the war as the following table shows. It gives the (unweighted) mean deviation of price ratios set out in the column " all commodities " as measured from 100 (the weighted mean of the distribution). It also gives the range :

	M.D.	*Range*
1938	6	38
1947	7	27
1948	5	22

There have been interesting changes in the dispersions of the different commodity groups. In 1938, cereals, meat and dairy produce had the smallest dispersions except metals, but since the war they have had practically the largest. Sugar and timber had the largest in 1938 and both were much reduced after the war—sugar in 1947 had the smallest of any.

Dispersions can also be measured by counting the number of regions which differ from 100 by more than the 1938 mean deviation.

Dispersions materially altered since the war—

Increased—Cereals, meat, dairy produce and metals.
Decreased—Sugar, minerals, petroleum and timber.

IV. GENERAL SUMMARY

There does not appear to have been much increase in price dispersions of U.K. imports from different regions since the war. Some increase was noted in comparing the main regions, but generally increases in some commodities were matched by decreases in others.

The investigation bears out the conclusion of the " Economic Survey of Europe in 1948 " that, on the whole, post-war purchases from soft-currency markets were not unfavourable. Canada has supplied us on relatively more favourable terms since the war. But so have the Sterling Area and South America, excluding the Argentine. European relative prices have hardened somewhat, especially those of Eastern Europe; and so have those of the American Account.

The British Empire and associated Sterling countries form a region, including Canada, which in 1948 supplied 45 per cent. of the total value of the imports represented in the index. It was a high-cost region before the war, but has been a low-cost one since, with a rising tendency in 1948.

APPENDIX A—METHOD

Prices were obtained in the same way as for the Board of Trade Import Price Index. Headings were selected from the Monthly Accounts of Trade and Navigation, December issues, according to two criteria.

Firstly, they had to stand for fairly homogeneous commodities; and secondly, the commodity should be fairly well distributed among suppliers. This alone is sufficient to exclude tea, wool, and rubber from the index—nearly a tenth of our total imports in 1938.

This leaves eleven commodity groups, which represent a remarkably steady proportion of our imports in the three years:

1938 .. 42 per cent. of total imports
1947 .. 43 ” ” ” ” ”
1948 .. 44 ” ” ” ” ”

The proportion is high enough for the index to be reasonably representative. Note that the basis of valuation is c.i.f.

A Paasche formula was used to calculate the index. That is to say, the price ratio for each commodity from a given region was weighted by the value of our imports of that commodity from that region had they been bought at the overall average price for the commodity. The formula is

$$\frac{\Sigma p_o\, q_1 \frac{P_1}{P_o}}{\Sigma p_o\, q_1} = \frac{\Sigma p_1\, q_1}{\Sigma p_o\, q_1}$$

where suffix ‘o’ stands for “all sources” and suffix ‘$_1$’ for a specific primary region.

By using this formula the calculation of a price ratio for “All Commodities” is simplified, as is the aggregation of primary regions into larger regions. But it invalidates the direct comparison between regions. Further, the use of a Laspeyre formula would have caused more violent fluctuations. It would have assumed for example that the whole of our cheese imports were bought from the U.S.A. at the extremely high price paid for a very small quantity in 1938. Actually the Laspeyre formula was used for a number of important primary regions and it was found that the correspondence was quite good for the various commodity groups, but that there were substantial differences in some of the overall ratios.

Appendix B—Classification of Countries

This was based on the type of financial account which the exporting country had with the U.K. From a list published in the Midlank Bank Review last year, the following list of primary regions was obtained. Only countries which contributed to the index are named.

Sterling Area

(*a*) Southern Hemisphere—Australia, New Zealand, South Africa, Southern Rhodesia.
(*b*) Asia—India, Pakistan, Burma, Iraq.
(*c*) Dependent Territories—various.
(*d*) O.E.E.C.—Eire.

American Account Countries

(*e*) U.S.A.
(*f*) The Rest—Bolivia, Cuba, Dominican Republic, Haiti, Mexico, Philippines, Venezuela.

Transferable Account Countries

(*g*) O.E.E.C. (including overseas dependencies)—Netherlands, Italy, Norway, Sweden.
(*h*) Eastern Europe—U.S.S.R., Poland, Finland.
(*i*) South America—Chile.
(*j*) The Rest—Egypt, Iran, Spain, Sudan.

Bilateral Account Countries

(*k*) O.E.E.C. (and dependencies)—Belgium, France, Denmark, Germany, Portugal.
(*l*) Canada and Newfoundland.
(*m*) Argentine Republic.
(*n*) Other South American—Brazil, Paraguay, Peru, Uruguay.
(*o*) The Rest—Palestine.

APPENDIX C—COMPOSITION OF COMMODITY GROUPS

CEREALS—wheat, barley, maize, oats, meal and flour.

MEAT—frozen beef (fore- and hind-quarters, also boned and boneless), tinned beef (other descriptions), lamb, mutton (chilled or frozen), bacon, pork (chilled or frozen).

DAIRY PRODUCE—butter, cheese, shell eggs (poultry).

SUGAR—unrefined molasses.

TOBACCO—unmanufactured (stripped and unstripped).

MINERALS—asbestos, iron ore (other sorts), tin ore, tungsten ore, zinc ore.

TIMBER—sawn softwood, planed or dressed softwood, pit-props, sleepers.

WOOD PULP—chemical (dry bleached, dry unbleached, wet), mechanical (wet).

TEXTILE MATERIALS—cotton (medium staple), hemp (not further dressed), flax.

PETROLEUM—crude, refined (kerosene, motor spirit, lubricating oil, gas oil, fuel and diesel oil).

METALS—electrolytic copper, lead (unwrought), zinc (unwrought).

Narrabeen, Australia.

NOTES: Figures in Roman are primary regions; figures in Italics are combinations of primary regions; Brackets indicate that the figures are based on very small imports.

REGIONAL PRICE RATIOS: BY COMMODITY GROUPS, 1938.

	Cereals	Meat	Dairy Produce	Sugar	Tobacco	Minerals	Timber	Wood Pulp	Textile Materials	Petroleum	Metals	All Commodities
Sterling Area	*101*	*100*	*103*	*133*	*78*	*106*	—	—	*89*	*110*	*100*	*103*
Eire	—	91	106	—	—	—	—	—	85	—	—	99
Southern Hemisphere..	102	101	103	116	94	116	—	—	149	—	100	103
Asia	96	—	—	—	72	74	—	—	88	98	100	87
Dependent Territories..	—	—	—	144	71	118	—	—	91	115	101	120
West Hemisphere ..	*104*	*96*	*101*	*73*	*105*	*91*	*104*	*116*	*97*	*99*	*100*	*99*
Dollar Area	*104*	*97*	*105*	*73*	*105*	*91*	*104*	*116*	*94*	*100*	*101*	*99*
Canada	103	96	105	—	110	78	97	120	81	—	101	101
American Account ..	*106*	*119*	—	*73*	*104*	*93*	*201*	*108*	*94*	*100*	*101*	*98*
U.S.A.	106	119	(550)	—	104	—	201	108	94	101	101	103
Rest	—	—	—	73	—	93	—	—	100	89	99	82
South America.. ..	*103*	*96*	*89*	*71*	—	—	—	—	*104*	*93*	*97*	*99*
Argentine	103	96	89	—	—	—	—	—	92	—	—	99
Rest	108	96	—	71	—	—	—	—	104	93	97	99
Europe	*81*	*104*	*103*	*68*	—	*103*	*98*	*98*	*121*	*98*	*99*	*99*
O.E.E.C.	—	*104*	*103*	*68*	—	*103*	*96*	*106*	*125*	*99*	*99*	*102*
Bilateral Account ..	—	101	94	68	—	113	98	106	130	99	97	100
Transferable Account	—	104	104	—	—	94	74	—	125	—	99	104
East Europe	81	—	—	—	—	—	98	89	87	82	—	92
The Rest	—	—	—	—	—	92	—	—	118	94	—	101
Mean Deviations ..	6	6	6	30	15	14½	27	11	16	8	2	6

REGIONAL PRICE RATIOS: BY COMMODITY GROUPS, 1947.

Sterling Area	*122*	*94*	*89*	*97*	*98*	*110*	—	—	*87*	*100*	*95*	*94*
Eire	—	116	124	—	—	—	—	—	79	—	—	110
Southern Hemisphere..	122	94	88	92	127	106	—	—	84	—	96	93
Asia	—	—	—	—	81	86	—	—	94	—	99	86
Dependent Territories..	—	—	—	97	76	115	—	—	86	100	90	97
West Hemisphere ..	*99*	*103*	*123*	*101*	*98*	*99*	*106*	*108*	*98*	*101*	*101*	*102*
Dollar Area	*94*	*117*	*123*	*101*	*98*	*101*	*106*	*108*	*116*	*101*	*102*	*102*
Canada	91	105	100	—	90	140	104	108	89	—	100	97
American Account ..	*117*	*165*	*147*	*101*	*98*	*88*	*111*	*122*	*117*	*101*	*105*	*107*
U.S.A.	117	165	147	—	98	—	111	122	116	102	116	111
Rest	—	—	—	101	—	88	—	—	143	94	97	99
South America.. ..	*127*	*96*	*106*	*102*	—	—	—	—	*76*	*112*	*84*	*100*
Argentine	128	96	106	—	—	—	—	—	102	—	—	106
Rest	103	97	—	102	—	—	—	—	75	112	84	84
Europe	—	*108*	*119*	—	—	*101*	*92*	*98*	*104*	*99*	*108*	*100*
O.E.E.C.	—	*108*	*119*	—	—	*101*	*91*	*97*	*102*	*99*	*108*	*101*
Bilateral Account ..	—	115	120	—	—	105	98	97	130	99	112	99
Transferable Account	—	108	119	—	—	97	81	—	101	—	107	103
East Europe	—	—	—	—	—	—	93	100	114	104	—	97
The Rest	—	—	—	—	—	98	—	—	125	100	—	105
Mean Deviations ..	16	15	18	3	16	12	11	8	25	5	6	7

Regional Price Ratios—By Commodity Groups, 1948.

	Cereals	Meat	Dairy Produce	Sugar	Tobacco	Minerals	Timber	Wood Pulp	Textile Materials	Petroleum	Metals	All Commodities
Sterling Area	*136*	*99*	*86*	*106*	*117*	*115*	—	—	*87*	*100*	*96*	*100*
Eire	—	119	116	—	—	—	—	—	94	—	—	112
Southern Hemisphere..	136	98	85	103	125	109	—	—	78	—	96	100
Asia	—	—	—	—	82	90	—	—	77	100	101	90
Dependent Territories..	—	—	—	107	93	120	—	—	87	100	96	101
West Hemisphere ..	*93*	*99*	*126*	*97*	*96*	*93*	*108*	*99*	*87*	*104*	*102*	*97*
Dollar Area	*90*	*103*	*122*	*97*	*96*	*93*	*108*	*99*	*87*	*104*	*102*	*97*
Canada	90	103	99	—	91	96	108	97	83	—	103	96
American Account ..	*129*	(*233*)	*171*	*97*	*96*	*92*	*106*	*119*	*87*	*104*	*100*	*99*
U.S.A.	129	(233)	171	—	96	—	106	119	86	105	100	101
Rest	—	—	—	97	—	92	—	—	104	94	104	96
South America.. ..	*99*	*95*	*188*	*88*	—	—	—	—	*88*	*107*	*96*	*96*
Argentine	99	95	188	—	—	—	—	—	—	—	—	98
Rest	90	98	—	88	—	—	—	—	88	107	96	90
Europe	*104*	*110*	*123*	*109*	—	*100*	*94*	*101*	*94*	*99*	*102*	*102*
O.E.E.C.	—	*110*	*123*	*109*	—	*100*	*92*	*99*	*94*	*99*	*102*	*102*
Bilateral Account ..	—	107	110	109	—	104	96	99	149	99	112	100
Transferable Account	—	111	125	—	—	96	84	—	92	—	101	107
East Europe	104	—	—	—	—	—	96	103	—	100	—	101
The Rest	—	—	—	—	—	96	—	—	146	97	—	112
Mean Deviations ..	17	23½	32	7	13	8	7	7	27	3	3½	5

Regional Price Ratios—"All Commodities" for all Years.

	1938	1947	1948
Sterling Area	*103*	*94*	*100*
Eire	99	110	112
Southern Hemisphere..	103	93	100
Asia	87	86	90
Dependent Territories..	120	97	101
West Hemisphere ..	*99*	*102*	*97*
Dollar Area	*99*	*102*	*97*
Canada	101	97	96
American Account ..	*98*	*107*	*99*
U.S.A.	103	111	101
Rest	82	99	96
South America.. ..	*99*	*100*	*96*
Argentine	99	106	98
Rest	99	84	90
Europe	*99*	*100*	*102*
O.E.E.C.	*102*	*101*	*102*
Bilateral Account ..	100	99	100
Transferable Account	104	103	107
East Europe	92	97	101
The Rest	101	105	112
Mean Deviations ..	6	7	5

Great Britain's Capital Formation, 1865—1914

By J. H. LENFANT

Economists and historians have long deplored the absence of adequate estimates of capital formation in Great Britain and the serious gap which it left in the increasingly well known story of the development of the British economy during the hundred years or so that preceded the First World War. A considerable amount of statistical work has, however, been undertaken on that subject in recent years and there now exist comprehensive measurements of capital formation in the United Kingdom reaching from the middle of the eighteen sixties until 1914. It will be of interest to many to find together in a short article a discussion of the principal statistical measurements that have become available.[1]

In what follows we present (*a*) decennial estimates of the stock of British capital at home and abroad between 1865 and 1914, (*b*) computations of annual capital formation between 1870 and 1914, and (*c*) a short survey of the course of home and overseas investment between 1870 and 1914. There is hardly any need to stress here that estimates of investment for that period are, from the nature of the data, somewhat tentative, and to warn the reader against the deceptive suggestion of accuracy of neat statistical series.

I

ESTIMATES OF THE VALUE OF FIXED CAPITAL INVESTED IN THE UNITED KINGDOM AND OF THE VALUE OF BRITISH LONG-TERM FOREIGN ASSETS, 1865–1914.

Estimates of the value of the national capital at various dates in the latter half of the nineteenth century and the beginning of the twentieth have been made by different authors.[1] They were later revised by P. H. Douglas who tried to introduce some measure of comparability into the separate figures by recalculating them on a more uniform basis. The main categories of incomes on which the calculations rest were re-estimated and then recapitalised at rates of interest kept constant over the period. The result was a set of fairly comparable decennial estimates of the stock of capital in the United Kingdom.[2]

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[1] Discontinuous and too heterogeneous data limit the measurements to broad aggregates. Detailed investigations of sections of industries or even of individual firms over long periods would yield rich rewards and increase our understanding of the process of economic changes.

If what interests us is the growth of the real capital invested and not only its nominal value, we note that the comparability of estimates referring to distant points of time is profoundly affected by changes in prices and interest rates. As Douglas recapitalised all his data at constant rates no corrections are called for by the fluctuations in rates of interest between 1865 and 1914.[3] Correcting the figures for changes in prices over the period raises the difficulty of selecting or constructing a suitable price index. Douglas solved the difficulty by combining Wood's index of money wages and Sauerbeck's index of the prices of raw materials.[4] This procedure is clearly unsatisfactory because the index of money wages is itself affected by the prices of raw materials and because it cannot be adjusted for changes in the efficiency of labour. Nor is an index of raw material prices in place here. It seems preferable to follow Colin Clark in combining an index of the price of machinery and an index of building costs.[5]

Table I presents A. K. Cairncross' Index of the Price of Machinery and G. T. Jones' Index of Building Costs together with a combined index. Equal weights were used in constructing the combined index although the importance of building compared with equipment and machinery is more likely to have been in the ratio of two or even three to one. However, various tests have shown that, in view of the parallel movements of the two separate indices, the use of equal weights does not materially affect the index or the conclusions derived from it. It should, moreover, be noted that Jones' Index of Building Costs, the only one available, is not altogether satisfactory, as it rests partly upon an index of the cost of building materials which is both insensitive and inappropriately weighted.[1] This may have serious consequences when deflating the value of capital. As will appear presently it is not unlikely that Jones' Index may be more reliable for the second than for the first part of the period.

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[1] See references in Paul H. Douglas : " An Estimate of the Growth of Capital in the United Kingdom, 1865–1909 ", *American Journal of Economic and Business History*, Volume II, August 1930.

[2] *Ibid.* Also his *Theory of Wages*, New York, 1934, pp. 463 *et seq.*

[3] This renders Colin Clark's procedure hard to follow ; when using Douglas' data he makes a further adjustment for changes in interest rates, thereby overstating the amount of capital at the beginning and at the end of the period when interest rates were high. This led him to the conclusion, which goes against all other evidence, that there occurred a large increase in real capital between 1905 and 1914. Colin Clark : *The Conditions of Economic Progress*, London, 1940, pp. 393–4. See also below, Section II and Tables III and IV.

[4] *American Journal of Economic and Business History*, August 1930.

[5] Colin Clark : *The Conditions of Economic Progress*, pp. 393–4.

TABLE I

PRICE INDICES FOR DEFLATING THE VALUE OF CAPITAL IN THE UNITED KINGDOM, 1875–1914

(1900 = 100)

	1	2	3
Year	*Price of Machinery*	*Building Costs*	*Combined Index*
1865	—	100	—
1875	88	108	98
1885	77	100	88
1895	79	91	85
1905	96	107	101
1914	104	115	109

SOURCES :—

1. A. K. Cairncross : " British Home and Foreign Investment, 1870–1913 ", unpublished Ph.D. thesis, 1936, Cambridge University Library, Table 10.
2. G. T. Jones : *Increasing Returns*, Cambridge, 1932. Index for 1914 from Cairncross, *op. cit.*, Table 7.
3. Arithmetic mean of 1 and 2.

It is clear that the resultant estimate of the real value of houses as shown in Table II is entirely unacceptable. For, if the estimates were correct, the annual rate of increase would have averaged 4·7 per cent. between 1875 and 1885 and 1·1 per cent. between 1895 and 1905. The better part of two housing booms fell within those two decades,[2] and the second percentage is likely to be on the low side ; whilst the former can be shown to have been physically impossible. On the other hand the rate of house building was appreciable, though moderate, between 1885 and 1895 when the increase shown in Table II would have averaged 3·2 per cent. per year.

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[1] H. W. Robinson : *The Economics of Building*, London, 1939, p. 97.

[2] See Table IV and the Chart on p. 168.

TABLE II

VALUE OF THE CAPITAL INVESTED IN THE UNITED KINGDOM, 1865–1914

(£Mn.)

	Current Prices	*1900 Prices*
Industrial Capital		
1865	1,735	—
1875	2,665	2,719
1885	2,951	3,353
1895	3,440	4,047
1905	4,534	4,489
1914 a ..	5,129	4,705
Houses ..		
1865	1,031	1,031
1875	1,420	1,315
1885	1,927	1,927
1895	2,318	2,547
1905	3,024	2,826
1914 a ..	3,330	2,895
Total Capital		
1865	2,766	—
1875	4,085	4,034
1885	4,878	5,280
1895	5,758	6,594
1905	7,558	7,315
1914 a ..	8,459	7,600

a. Nine years.

Sources :—

1. P. H. Douglas : "An Estimate of the Growth of Capital in the United Kingdom, 1865–1909", *American Journal of Economic and Business History*, Vol. II, August 1930, pp. 661, 665 and 675.
2. Column 1 deflated by means of the price indices shown in Table I. Industrial Capital : combined index ; Houses : index of building costs.

The net increase in the number of houses in England and Wales between each census year since 1861 fluctuated between 1·2 per cent. and 1·5 per cent. of the total number of houses in existence at the beginning of each decade.[1] If there were 4·5 mn. houses in England and Wales in 1871, a 4·7 per cent. annual increase over the following decade would have involved an annual net building rate of no less than 211,500 houses, and 2,115,000 houses would have been built during the decade. Such was not the case, for approximately 698,000 only are recorded as having been built. Furthermore, an increase of that magnitude would have been altogether out of keeping with the increase of the population or of the number of families.[1] It was not attained in the whole of Great Britain even during the second building boom of the period, when 1·29 mn. houses are estimated to have been built between 1895 and 1905, with a maximum number of 180,000 in 1899.[2]

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[1] Data in H. W. Robinson : *ibid.*, p. 109.

Comparisons of the increase in the estimated value of houses at distant points of time and of estimates of the actual number of houses or dwellings in existence cannot be expected to lead to the same results. The respective calculations should, nevertheless, lead to reasonable conclusions and one would also expect some broad parallelism between the rates of increase indicated by the two methods. This parallelism is entirely absent in 1875–1885 and 1885–1895. The doubtful validity of estimates of the value of houses, especially in the early decades of the period may, in its turn, throw some doubts on the reliability of the estimates of the real stocks of industrial capital. Nevertheless, as we shall see presently, comparisons stretching over several decades and in particular over the whole of our period may be made with greater confidence.[3]

Investment in Great Britain itself did not represent more than a part, just over 60 per cent., of total capital accumulation over the period as a whole. A highly variable but considerable part of the country's savings was invested abroad and the fund accumulated outside the country is estimated to have grown from about £785 Mn. in 1870

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[1] *Ibid.*, pp. 105 and 109, and H. Barnes: *Housing*, London, 1923.

[2] A. K. Cairncross: " British Home and Foreign Investment, 1870–1913 ", unpublished Ph.D. thesis, 1936, Cambridge University Library, Table 6. Adding to the number of houses in England and Wales in 1871 Cairncross' estimate of the number of houses built in England and Wales in the course of the following decades we find that the percentage annual increases work out as follows:

1875–1885	1·8 per cent.	1895–1905	2·0 per cent.
1885–1895	1·4 per cent.	1905–1914	1·2 per cent.

It is difficult to ascertain how far the defects in Jones' Index of Building Costs introduce serious errors into the deflated value of houses at the various dates as there is no alternative index. A. K. Cairncross' estimate of the average cost per room of new houses in Glasgow (in " The Glasgow Building Industry, 1870–1914 ", *Review of Economic Studies*, Vol. II, No. 1, 1934, p. 15, Table I) cannot be used as a check because it reflects local conditions too much to be representative of cost changes in the country as a whole. (See E. W. Cooney, " Capital Exports, and Investment in Building in Britain and the U.S.A., 1856–1914, *Economica*, November 1949, pp. 351–352.)

[3] Section II, p. 159. Definite inferences concerning the amount of capital in existence at any point of time or its amount per head, and more particularly the changes over short periods like one decade, should be received with reservations. See, for instance, Colin Clark's calculations of the growth of capital in his *Conditions of Economic Progress*, pp. 392 *et seq.*, and P. H. Douglas' attempts to determine the supply functions of capital in the United Kingdom and the United States in his *Theory of Wages*, Chapter XVIII. See also L. M. Lachmann's apposite comments in his article " On The Measurement of Capital ", *Economica*, November, 1941, esp. pp. 362–367.

to some £3,715 Mn. in 1913, an increase of £2,930 Mn.[1] On the other hand, the value of capital invested at home rose by £5,693 Mn.: from £2,766 Mn. in 1865 to £8,459 Mn. in 1914 (Table II).

II

ANNUAL CAPITAL FORMATION IN THE UNITED KINGDOM, 1870–1914

A working estimate of the value of annual investment in fixed capital at home was made by Professor A. K. Cairncross in the unpublished work cited. It combines five separate series: House building, Shipbuilding, Railway Construction, Machinery and Investment by Local Authorities. The series were obtained by applying appropriate price indices to estimates of the volume of constructional activity in each year (Shipbuilding, House building, Engineering) or by combining scattered data on investment and repair expenditure (Railways, Public Authorities).[2] It may be objected that the figures thus arrived at can be but approximate; but it should be remembered that the inadequacy of the data precludes a more satisfactory approach. Within broad margins, however, the figures reflect well the trend of investment over the forty-four years concerned, but they appear to be too high as a measure of net investment and to understate considerably the value of gross investment. Important items are left out: the maintenance of houses and the depreciation and obsolescence of total capital.[3] Changes in inventories are also excluded.[4]

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[1] A. K. Cairncross: "British Home and Foreign Investment, 1870–1913," pp. 224–5. J. H. Lenfant: "British Capital Export, 1900–1913", unpublished Ph.D. thesis, 1949, University of London Library, pp. 53, 58, 476–80, and Chapter II.

[2] A. K. Cairncross: *ibid*., pp. 170–222. The annual value of house building having been obtained by multiplying an index of the volume of house building by Jones' Index of Building Costs and applying the resulting index to the value of building in a base year (1907, when house building amounted to £45 Mn.) is affected by the deficiencies in Jones' Index mentioned earlier (p. 153).

[3] *Ibid*., pp. 221–2.

[4] Inventories were not negligible, and relatively small year-to-year changes may therefore have affected considerably the true value of total investment. It is estimated that inventories amount to between 40 and 50 per cent. of the National Income and a value of £1,000 Mn. or more has been suggested for 1912–3. See A. J. Brown, "Resources available for the War: a Comparison", *Oxford Economic Papers*, March 1940, pp. 12–13; J. Stamp: *Wealth and Taxable Capacity*, London, 1922, p. 167; Colin Clark: *The National Income, 1924–31*, London, 1932, Appendix 1, and *National Income and Outlay*, London, 1937, Appendix III; A. Maizels: "Consumption, Investment and National Expenditure in Wartime", *Economica*, 1941, esp. pp. 157–161; T. Barna: "Valuation of Stocks and the National Income", *Economica*, November 1942.

Professor Cairncross' estimates, after the adjustments explained below, are presented in Tables III and IV.

Gross Investment represents the sum of two kinds of expenditure which it is often impossible to separate in practice: on the one hand, maintenance, depreciation, and obsolescence, and on the other, the increase of the stock of capital. On the basis of his estimates for the period 1870–1913 Cairncross arrived at a total of £196 Mn. for Gross Home Investment in 1907, of which about £120–125 Mn. would represent Net Investment, leaving £70–75 Mn. for depreciation and maintenance.[1] On the other hand, in order to check the estimates, he made for the same year, 1907, a detailed calculation based on information made available in the 1907 Census of Production. According to the Census returns, total new construction would seem to have amounted to about £120–130 Mn., depreciation and obsolescence to £40 Mn. and repairs and maintenance to approximately £124 Mn., thus raising total Gross Investment to £284–294 Mn.[2] Assuming those figures broadly correct we can proceed to adjust Cairncross' £196 Mn. total by adding £38 Mn. for house repairs and maintenance, and another £40 Mn. for depreciation and obsolescence of total capital.[3] The original figure is thereby increased by £78 Mn., say £80 Mn., bringing it to £276 Mn. made up as follows: new investment £110 Mn., maintenance, depreciation and obsolescence £166 Mn.[4] It seems likely that a total of £160–170 Mn. for depreciation, etc., cannot be far out, as it would be equivalent to between 8 per cent. and 9 per cent. of the Net National Income in 1907.[5]

In order to adjust Cairncross' Gross Investment figures a rather unsatisfactory method was used, but the only one which seemed practicable under the circumstances. Expenditure on maintenance, depreciation and obsolescence varies in the long run with the amount and the durability of the capital in existence and with the National Income. The annual allowances may thus be derived either from the capital or from the National Income estimates. We have seen that the estimates of the value of capital in existence are none too reliable in any of the years for which they exist, especially in 1875, 1885 and 1895[1]; being available once in ten years only, they do not provide any indications as to the annual distribution of the increase in capital and of the allowances required to "keep capital intact". It seems, therefore, preferable to relate these allowances to the National Income, taking for all the years a percentage equal to that obtaining in 1907.[2] Now the £80 Mn. by which the total for 1907 should be raised come to approximately 4 per cent. of the Net National Income in that year; and we apply the same percentage to the National Income for each year between 1870 and 1914.[3] The results are shown in Table III, col. 1.

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[1] A. K. Cairncross: *Home and Foreign Investment, 1870–1913*, pp. 221–222.

[2] *Ibid.*

[3] *Ibid.*

[4] Flux, in the Report on the Census of Production for 1907, estimated depreciation and maintenance of plant at £175 Mn. and of consumers' stocks, left out of our enquiry, at £15 Mn., in all £190 Mn. Net Home Investment would have amounted to about £40 Mn. (A. Bowley and J. Stamp: *The National Income 1924*, Oxford, 1927, p. 56, and *Studies in the National Income 1924–1938*, ed. A. L. Bowley, Cambridge, 1944, pp. 48–49.) Colin Clark put investment in Gross Fixed Capital in the same year at £249 Mn., of which depreciation and maintenance took £139 Mn., leaving about £110 Mn. for the net increase in fixed capital (Colin Clark, *National Income and Outlay*, pp. 83, 177, 178 and 183). On those estimates, see Cairncross, *op. cit.*, pp. 221–222.

[5] Using Prest's estimate of the National Income: "National Income of the United Kingdom, 1870–1946", *Economic Journal* March 1948, p. 57.

The average ratio of total depreciation and maintenance to Net National Income appears to have been relatively stable, even over long periods, and to have increased but slowly as shown by the available estimates: 8 to 9 per cent. in 1907, 8 to 9 per cent. in 1924–1933 and 9·7 per cent. in 1938.[4] It is probably safe to put these total allowances at 8 per cent. of the Net National Income for the period 1900–1913. The ratio is likely to have been somewhat lower in 1870 and to have increased a little in the following decades as a result of capital accumulation. Furthermore, the increase probably did not take place at an even rate as two large investment booms occurred, one in the middle and late 'seventies and another at the turn of the century. In estimating annual depreciation, maintenance and obsolescence between 1870 and 1913, the period has therefore been subdivided, somewhat arbitrarily, into three parts: 1870–1876, 1877–1899 and 1900–1914 when the percentages are put at 7 per cent., 7·5 per cent. and 8·0 per cent. respectively.[1] The annual figures are shown in Table III, col. 3.

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[1] See above, p. 155.

[2] The discrepancies in the results yielded by the two methods are, in fact, small and do not materially affect the final estimates.

[3] This procedure is, of course, open to criticism as it seriously damps down the fluctuations in the resulting series. Taking a flat rate gives a purely notional rate of expenditure which takes no account of the ebb and flow in business activity. Our figures therefore overstate depreciation and maintenance in bad years and understate them in good years.

[4] Colin Clark: *The National Income, 1924–1931*, p. 136, and *National Income and Outlay*, p. 88, London and Cambridge Economic Service, Volume XXVI, May 19, 1948, p. 47. See also *National Income and Expenditure of the United Kingdom, 1946–1948*, April 1949, Cmd. 7649, p. 5.

Total Gross Investment after adjustment and after deduction of estimated total depreciation and maintenance yields the approximate value of total Net Home Investment. Adding to Net Home Investment the annual Export of Capital, we obtain the approximate value of Total Capital Formation of the United Kingdom, Gross or Net, according to whether Depreciation and Maintenance of home capital is included or not.

The results fit in well enough with known and commonly accepted evidence concerning the course of investment activity over the period. They contain, however, large margins of error, a fact which should be remembered when using them as measures of the absolute level of investment.

The degree of comparability of the estimates of the value of the stock of capital and of annual capital formation can easily be brought out. The stock of capital appears to have increased by about £4,374 Mn. whilst on our reckoning net investment at home increased by about £4,273 Mn. The remarkable closeness of the two figures, in so far as it represents more than a gratifying statistical accident, would indicate that for the purpose of long-term comparisons, estimates of the value of capital in existence may give a more reliable picture than was suggested in the preceding section. The correspondence over short periods is, however, less satisfactory, particularly in the decades 1876–1885 and 1886–1895, where the two calculations show changes in opposite directions. For the purpose of short-term analysis, preference should therefore be given to the direct estimate.

A passing reference must be made here to estimates of capital formation and their use as a measure of saving. Our figures measure investment expenditure and are, therefore, no satisfactory measure of actual saving in any one year, or even over a number of years, although they certainly indicate well its magnitude and long-term trend. There is no adequate check on this point as no satisfactory estimates of savings proper exist or could be made. Most of the figures quoted from time to time and purporting to represent savings are no more than estimates of investment expenditure

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[1] See note 3, page 158.

TABLE III

BRITISH HOME AND FOREIGN INVESTMENT, 1870–1914 (*at current prices*)

Year	1	2	3	4	5	6	7	8	9	10	11
	Home Investment					*Foreign Investment*		*Total Investment*			
	Gross		*Depreciation and maintenance*	*Net*		*Net*		*Net*		*Gross*	
	£ Mn.	*% of Gross Income*	*£ Mn.*	*£ Mn.* (1 – 3)	*% of Net Income*	*£ Mn.*	*% of Net Income*	*£ Mn.* (4 + 5)	*% of Net Income*	*£ Mn.* (1 + 6)	*% of Gross Income*
1870	119	12·0	65	54	5·8	26	2·8	80	8·6	145	14·6
1871	133	12·5	69	64	6·5	60	6·1	124	12·6	193	18·3
1872	147	13·2	73	74	7·1	82	7·9	156	15·0	229	20·5
1873	162	13·4	79	83	7·3	72	6·3	155	13·6	234	19·3
1874	174	14·3	79	95	8·4	55	4·8	150	13·2	229	18·9
1875	173	14·9	76	97	8·9	28	2·6	125	11·5	201	17·3
1876	187	16·1	76	111	10·2	– 4	– 0·3	107	9·9	183	15·7
1877	198	16·8	82	116	10·6	– 16	– 1·5	100	9·1	182	15·5
1878	183	15·9	80	103	9·6	– 3	– 0·3	100	9·3	180	15·6
1879	155	14·1	76	79	7·7	15	1·5	94	9·2	170	15·5
1880	173	15·0	80	93	8·6	6	0·6	99	9·2	179	15·5
1881	174	14·5	83	91	8·2	38	3·4	129	11·6	212	17·7
1882	177	14·2	87	90	7·8	30	2·6	120	10·4	207	16·7
1883	172	13·5	89	83	7·0	24	2·0	107	9·0	196	15·4
1884	159	13·0	85	74	6·5	47	4·1	121	10·6	206	16·9
1885	151	12·6	84	67	6·0	37	3·3	104	9·3	188	15·6
1886	144	11·8	85	59	5·2	59	5·2	118	10·4	203	16·6
1887	143	11·4	87	56	4·8	64	5·5	120	10·3	207	16·5
1888	157	11·7	93	64	5·1	72	5·8	136	10·9	229	17·1
1889	177	12·3	100	77	5·8	66	4·9	143	10·7	243	16·9
1890	182	12·1	105	77	5·5	81	5·8	158	11·3	263	17·5
1891	181	12·1	104	77	5·6	46	3·3	123	8·9	227	15·2
1892	180	12·2	102	78	5·8	32	2·3	110	8·1	212	14·5
1893	174	12·1	100	74	5·5	37	2·8	111	8·3	211	14·7
1894	187	12·6	103	84	6·1	17	1·2	101	7·3	204	13·8
1895	198	12·8	108	90	6·3	20	1·4	110	7·7	218	14·1
1896	216	13·4	110	106	7·3	36	2·4	142	9·7	252	15·9
1897	225	13·8	114	111	7·4	24	1·5	135	8·9	249	15·2
1898	259	15·0	120	139	8·6	14	0·9	153	9·5	273	15·8
1899	299	16·6	125	174	10·4	26	1·5	200	11·9	325	18·1
1900	317	16·7	140	177	10·1	28	1·6	205	11·7	345	18·2
1901	311	16·7	138	173	10·1	12	0·7	185	10·7	323	17·3
1902	302	16·1	139	163	9·3	9	0·6	172	9·9	311	16·6
1903	304	16·4	137	167	9·7	20	1·2	187	10·9	324	17·5
1904	306	16·3	139	167	9·6	24	1·4	191	11·0	330	17·5
1905	312	15·9	145	167	9·2	59	3·2	226	12·4	371	18·9
1906	302	14·4	155	147	7·6	100	5·1	247	12·7	402	19·2
1907	276	12·5	163	113	5·5	135	6·6	248	12·1	411	18·7
1908	263	12·6	154	109	5·7	126	6·5	235	12·2	389	18·7
1909	270	12·3	158	112	5·6	104	5·3	216	10·9	374	17·5
1910	275	12·3	165	110	5·3	143	6·9	253	12·2	418	18·8
1911	276	11·9	171	105	4·9	183	8·5	288	13·4	459	19·9
1912	290	11·8	181	109	4·8	203	8·9	312	13·7	493	20·1
1913	332	13·0	189	143	6·1	216	9·1	359	15·2	548	21·4
1914	319	13·0	181	138	6·1	—	—	—	—	—	—

SOURCES :—

1. A. K. Cairncross, " British Home and Foreign Investment, 1870–1913 ", unpublished Ph.D. thesis, University Library, Cambridge, 1936, Table II. Original figures adjusted for house maintenance and for depreciation and maintenance of total

(*Footnote continued on opposite page*)

TABLE IV

BRITISH GROSS HOME INVESTMENT, BY MAIN GROUPS, 1870–1914

(*£ Mn., at current prices*)

Year	*Housing*	*Railways*	*Ship-building* b	*Machinery*	*Local Authorities*	*Total* a
1870	43	18	17	17	5	100
1871	41	20	24	23	6	114
1872	47	21	26	25	7	126
1873	53	25	27	26	9	140
1874	57	29	32	21	12	151
1875	63	29	21	28	11	152
1876	72	29	19	33	13	166
1877	79	28	21	31	16	175
1878	70	25	21	28	17	161
1879	56	21	18	23	15	133
1880	62	22	24	28	15	151
1881	58	24	30	24	17	153
1882	59	25	36	23	11	154
1883	60	27	30	21	11	149
1884	55	26	20	23	13	137
1885	53	22	18	23	12	128
1886	54	20	14	22	11	121
1887	53	20	16	19	12	120
1888	56	20	22	24	9	131
1889	61	22	32	27	9	151
1890	61	25	33	26	9	154
1891	62	27	27	25	13	154
1892	57	27	25	30	13	152
1893	58	25	19	29	17	148
1894	60	25	23	34	16	158
1895	69	26	24	33	16	168
1896	77	29	25	38	17	186
1897	70	31	24	48	20	193
1898	87	34	35	47	25	228
1899	100	37	40	58	29	264
1900	97	40	43	68	33	281
1901	93	37	41	65	39	275
1902	86	35	40	66	41	268
1903	88	36	39	70	36	269
1904	97	34	38	66	36	271
1905	106	33	41	64	31	275
1906	94	33	44	65	27	263
1907	86	33	38	55	24	236
1908	89	30	27	56	22	224
1909	85	29	32	62	22	230
1910	81	29	38	65	21	234
1911	72	30	49	62	20	233
1912	71	31	58	62	21	243
1913	78	33	66	82	24	283
1914	81	33	55	78	25	272

a. Exclusive of depreciation and obsolescence. b. Includes naval building.

SOURCE :—

A. K. Cairncross : *op. cit.*, Table II. Decimals omitted. Column 1 adjusted to include repair and maintenance expenditure; see text, p. 157.

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capital, amounting to about £80 Mn. in 1907 (*Ibid.*, p. 222), i.e., 4 per cent. of the Net National Income; correction for other years put at 4 per cent. of Net National Income.

3. 1870–1876 : 7 per cent., 1877–1899 : 7·5 per cent., 1900–1914 : 8 per cent. of Net National Income.

6. A. K. Cairncross, *op. cit.*, Table 14.

during the year. There exist, however, estimates of savings for the years 1911 and 1913. But the fact that they are well below our investment totals and that the range within which the various estimates fall is rather wide, makes comparisons or inferences unsafe and delicate.[1]

III

Home and Foreign Investment, 1870–1914

The level and the expansion of incomes and effective demand overseas were largely dependent on the provision of sufficient capital which, on the whole, meant British capital. As investment overseas recurrently exceeded in scale and in range the local means of absorption and of profitable employment, the unavoidable crises which followed entailed the cessation or near cessation of foreign lending and the slowing down of the rate of increase of foreign incomes and demand, which released resources for investment within Britain itself in houses, industry, public utilities or even at times armaments. Once home investment had gone far enough and prospects abroad had again become attractive the whole process would be repeated. The periodical redirection of the bulk of investment activity was to a considerable extent a consequence of the special conditions of the time, and its almost accidental nature came to be regarded by many as part of the order of nature long after the underlying conditions had altered.

The figures presented in Table III and shown in the chart bring out most vividly the course of events since 1870. In the long run home and foreign investment fluctuated in opposite directions. In the short run, however, both tended to move together, although with lags as home investment reacted to the stimulus of foreign investment acting via the

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[1] The various estimates of savings are as follows:

	£ Mn.	
1911	403	a
	330	b
1913	380	c
	350–400	d
	400	e

a. A. L. Bowley and J. Stamp: *The National Income, 1924*, Oxford, 1927, pp. 56–57.
b. A. C. Pigou, quoted by H. Feis: *Europe, the World's Banker, 1870–1914*, New Haven, Yale University Press, 1930, p. 3.
c. *The Economist*, Oct. 10, 1925, p. 365.
d. Report of the Committee on National Debt and Taxation, 1927, quoted by Feis, *op. cit.*, p. 3.
e. F. Lavington: *The English Capital Market*, 3rd edition, London, 1934, p. 205.

export trades and connected industries. This generalisation does not fit the boom of 1895–1905 because the revival of investment was then entirely a home affair in no way associated with capital export which was very low and even declining at the time.

Investment at home was particularly buoyant during two periods: 1873–1884 and 1895–1905, with maxima in 1877 and again in 1900 and 1905. Lesser outbursts occurred in 1882 and 1890 and a revival seems to have set in on the eve of the First World War. Investment abroad, on the other hand, was very large in 1871–1874, 1886–1890 and 1905–1913, whilst peaks were reached in 1872, 1890 and 1912–3.

Active export of capital coincided with spells of relatively small import balances. A high level of investment within Britain, on the other hand, was associated with a particularly large excess of imports over exports, as one would normally expect. Further evidence in support of the validity of the distribution of investment over the 44 years covered by this study is found in the fluctuations in the ratio of an index of exports to an index of industrial production[1]: a large export of capital coincided with a rise in the ratio, and periods of intensive home investment and small export of capital with a fall in the ratio. The significance of the changes in the ratio arises from the close and direct link existing between foreign lending, world income and foreign demand for British exports, further enhanced by the high gearing of Britain's industrial production to exports. The noted correlation which holds good for the period as a whole and even for a small number of years taken together cannot, of course, be expected to be equally apparent in, or indeed necessarily true of, yearly fluctuations.

Concerning the distribution of the various forms of home investment, one fact stands out: the relative importance of house building. This is striking throughout the whole period, especially during the two spells of intensive investment, 1873–1884 and 1895–1905, but more so in the latter. For what they are worth, the series presented in Table IV suggest a rate of Gross Investment in housing to total Gross Home Investment fluctuating between 25 per cent. and 45 per cent., with an average of 37·5 per cent. for the forty-four years 1870–1913. During the two building booms of 1873–1884 and 1895–1905 the ratios averaged 41 per cent. and 52 per cent. respectively.[1] As a consequence, the fortunes of house building determined the course and the fluctuations of total investment at home.[2] The peak in the year 1877 was the immediate result of the outburst of house building brought on by the fall in prices and in interest rates and by the cessation of foreign lending after the collapse of 1873. Again house building was the main determining factor in the timing and the course of the boom of 1895–1905.[3] The same factor was to a large extent operative in the sharp decline in home investment that followed 1906 when building slumped heavily whilst capital export reached great heights.

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[1] Werner Schlote: *Entwicklung und Strukturwandlungen des englischen Aussenhandels*, Jena, 1938, pp. 158–9.

If house building is disregarded, other forms of investment proceeded at a fairly high rate between 1873 and 1883, with three successive but minor peaks in 1874, 1877 and 1881–2 (Table IV). That was the decade when steel was coming into its own and its demand increased enormously; the use and production of machine tools spread and increased rapidly, a process hastened by the depression that followed the crisis of 1873 which stimulated the invention and putting into operation of labour-saving devices. Great improvements were made in iron production, and the activity of the shipbuilding trades stimulated the demand for iron plates and angles; steel was also increasingly used in shipbuilding and new and improved types of ships were being devised as the country found itself to a growing extent dependent on overseas sources of foodstuffs whose output expanded steadily following the opening up of new areas overseas in the 'fifties, 'sixties and early 'seventies. In cotton, productive capacity and output made great strides. Similar changes and improvements can be detected in most industries.[1] It cannot be doubted that the decade 1874–1883 during which prices, interest rates and profit margins were falling was one of extremely rapid economic and industrial progress.

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[1] These ratios may be compared with estimates for 1935 and 1938 when Gross Investment in building and civil engineering (note that our pre-1914 figures are confined to mere house building and repairs) represented 60 per cent. and 53 per cent. respectively of Gross Fixed Investment (Working Party Report on Building Operations, quoted in *The Economist's Records and Statistics*, May 6th, 1950, p. 433). In 1935 and 1938 new building alone represented about 29 per cent. and 18 per cent. respectively of Gross Investment. The comparable ratios were 22 per cent. in 1870–1914, 26 per cent. in 1873–1884 and 23 per cent. in 1895–1905.

[2] It is well to remember that all our figures represent Gross Investment and that the rate of Net Investment was therefore considerably less and fluctuated much more widely than the series presented in Table IV would suggest.

[3] The onset and rapid progress of investment within Britain after 1894 was directly related to the very low level of interest rates at the time which were made possible by an unusually large inflow of gold into the Bank of England following a temporary slowing down of the rate of absorption throughout the world coinciding with increased imports from South Africa, and from the United States where monetary disturbances led to considerable losses to Britain and to Europe. The Bank Rate remained thus at 2 per cent. for 133 weeks running from February 1894 until September 1896. Prices were low or falling, the industrial countries' terms of trade had sharply improved, whilst foreign lending had nearly ceased on account of the crises that occured in many borrowing countries in 1890 and the following years. Home investment was extremely low and the fact that during the previous decade most of the country's savings had found employment overseas meant that arrears in house building and in home investment in general were considerable.

During the middle and late eighties investment fell off and remained relatively low; industrial activity was maintained by the revival of foreign investment which had found fresh outlets in South America and in the new gold producing centres in South Africa and Australia. Home investment in its turn gained some fresh impetus, and following the break caused by the 1890 crisis rose to great heights between 1895 and 1905. As we have seen, this outburst was marked by the prosperity of the house building trades, even more than in 1873–1884. Shipbuilding, stimulated by brisk trade and large foreign orders, remained very active until 1906–7 and after a break resumed its expansion in 1910. The output of machinery, high throughout, benefited from the replacement demand and from some increase in capacity, certain industries re-enacting the experience of the early 'seventies, though in a smaller way: an increase in capacity followed later by excess capacity and falling profit margins. This was true of coal shortly after 1900, but of cotton somewhat later, however, as under the influence of capital export world demand for textiles temporarily expanded beyond the increase in the industry's ability to satisfy it. It was not till after the further expansion of 1906–10 that excess capacity appeared. Finally the period also witnessed the large-scale application of electrical power in industry, the development of the motor car and cycle industries and a rapidly growing demand for rubber, oil and non-ferrous metals.

In view of the relatively great importance of house building, its sharp contraction after 1905 involved a decline in home investment expenditure made worse still by a similar although less pronounced decline in the other groups. Naval building, however, continued to increase following the competitive growth of rearmament programmes in Europe. But conditions were then favourable to foreign investment and capital export staged the last of its ‘classical’ outbursts.

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[1] W. W. Rostow: *British Economy of the Nineteenth Century*, Oxford, 1947, pp. 71 *et seq.*

On the eve of the First World War investment within Great Britain was once again recovering whilst the prospects for investment abroad began to look less attractive: prices had reached a ceiling, the pressure of international competition which had been increasing since the eighteen nineties could not be entirely alleviated by the stimulating effect of capital export upon world demand, and after years of intensive capital export industry had become aware of the need for new equipment. Had the war not broken out when it did, it seems likely that with only a relatively moderate rate of export of capital the greater part of the country's savings would for a time have been devoted to internal development instead of to financing an economically wasteful war.

It is of considerable interest to compare our estimates of investment with the annual National Income figures now available from 1870 onwards.[1] The yearly ratios of investment to Gross Income are presented in Table III and shown in chart form at the end of the article. As the National Income data are net of depreciation and maintenance, Gross Income was obtained by adding to Net Income our estimated allowances for depreciation and maintenance as shown in Table III. The percentages of investment to Income bring out strikingly the fluctuations of the relative importance of the resources devoted to investment at home and abroad. The years of falling prices, 1875–1896, appear as a period during which the average investment percentage was below the average for the period as a whole. During the late 'seventies and early 'eighties the level of total Gross Investment was well maintained and fluctuated between 14 per cent. and 18 per cent. of Gross Income (7 per cent. and 12 per cent. of Net Income if we consider Net Investment). The early and middle 'nineties had a particularly poor investment record; those years coinciding, as we have seen, with a slump in capital export and a low rate of investment at home which had only just begun to recover from the depressed level reached in the late 'eighties. In 1894 total Gross Investment fell as low as 13·8 per cent. of Gross

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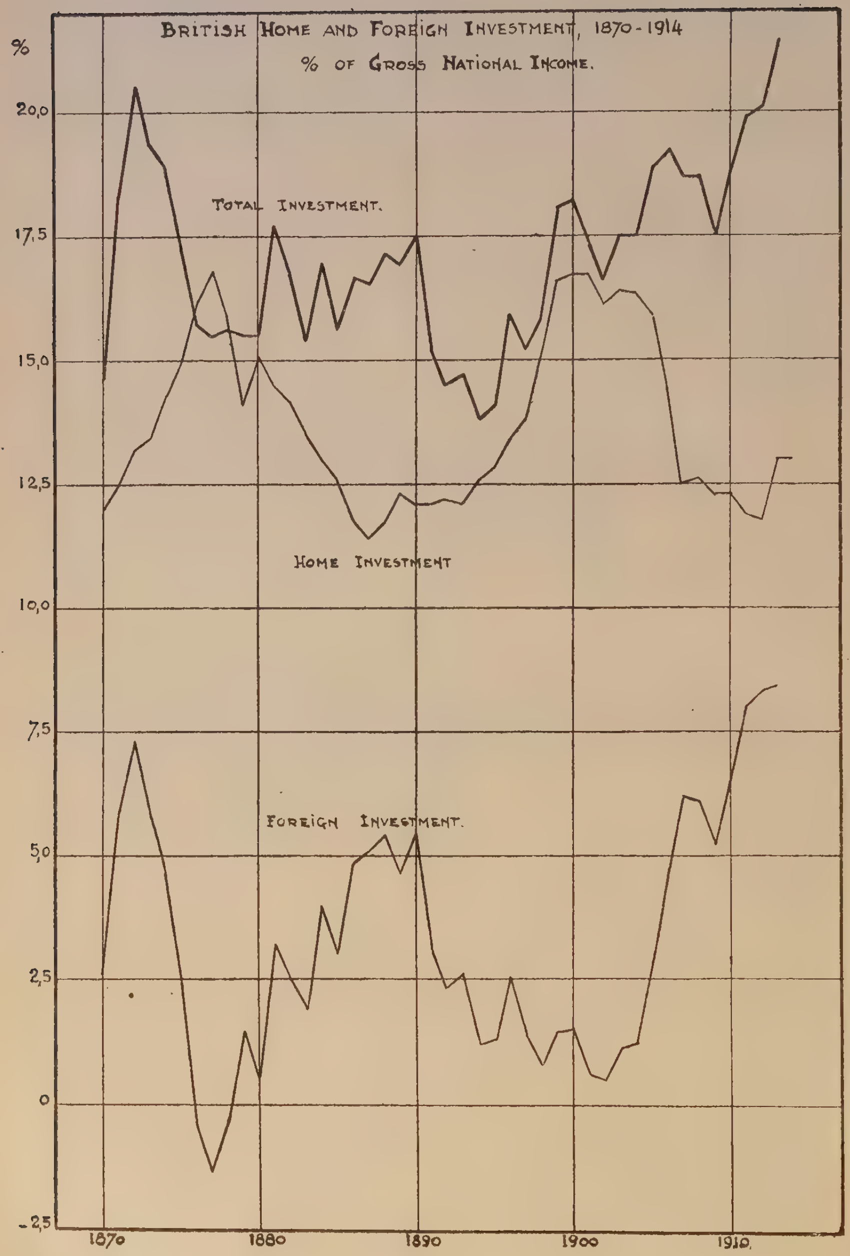
[1] A. R. Prest: "National Income of the United Kingdom, 1870–1946", *Economic Journal*, March 1948.

Income and Net Investment was correspondingly lower at 7·3 per cent. of Net Income. This may be compared to an average of 17·4 per cent. over the whole period, of 15·9 per cent. in 1875–1896, and 18·4 per cent. during the high investment spells of 1870–74 and 1897–1914 (in terms of Net Investment and Net Income, the percentages work out respectively at 11·0 per cent., 9·6 per cent., 12·7 per cent. and 11·9 per cent.).

Making all necessary reservations concerning the nature of the data, we are warranted in taking the view that in relation to the National Income investment had presumably reached as high a level in 1913 as in 1872. In both years, moreover, prices were high and the Gross Investment to Income ratio then reached maxima of 21·4 per cent. and 20·5 per cent. respectively, and Net Investment amounted to as much as 15·0 per cent. of Net Income. It is significant that over the twenty years or so during which prices were falling the average investment ratio appears to have been noticeably lower than in years of high or rising prices and optimistic business expectations. This short survey brings out also the fact that over the period as a whole the average level of investment underwent important long-term as well as short-term changes, that home and foreign investment were most intimately interlinked and, finally, that rates of Gross Investment in the neighbourhood of 20 per cent. of Gross Income were associated with active capital export, high prices and a high level of employment as experienced in the years 1870–72 and 1911–13.

Brussels.


British Home and Foreign Investment, 1870-1914
% of Gross National Income.
%
20,0
17,5
15,0
12,5
10,0
7,5
5,0
2,5
0
-2,5
1870
1880
1890
1900
1910.
Total Investment.
Home Investment
Foreign Investment.

Changes in the Structure of the German Banking System[1]

By J. Lanner

The reorganisation of the Western German banking system, in progress since the end of the last war, is now entering a new phase. The present structure is the result of decisions taken by the allied authorities, particularly those of the U.S.,[2] and its resemblance to the institutions of that country is thus very marked. It is nevertheless obvious that recent developments, particularly with respect to the centralisation of credit control, have run counter to the intentions of the American framers of the laws of 1947 and 1949 which decentralised central as well as commercial banking.

Political developments in the Western Zones, leading to the creation of the Federal German Republic, are now beginning to affect the legal and organisational structure of post-war banking. Future changes in the system have become the responsibility of the Federal German Government—with, of course, an allied right to veto undesirable decisions—and the present position is thus of interest only as a point of departure.

I shall attempt in this paper to discuss various proposals aimed at re-shaping German banking. The problems to be discussed fall naturally into three groups:

I. The Control of Monetary Policy.
II. The Structure of the Commercial Banks.
III. The Organisation of Central Banking.

There are, of course, logical connections between problems under the various headings, but it appears most advantageous to discuss them in the above order.

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[1] This paper is a by-product of a study of post-war German banking, which I am undertaking with the financial assistance of the Houblon-Norman Fund of the Bank of England. I should also like to take this opportunity of expressing my gratitude for the assistance I received in Frankfurt from the members of the British element of the Allied Bank Commission and many members of the staff of the Bank Deutscher Laender. None of these organisations, of course, bear any responsibility for the views expressed in this paper.

[2] For an outline of the reorganisation of 1947–1948, see H. Adler: "The Post-War Reorganisation of the German Banking System," *Quarterly Journal of Economics*, August 1949.

I

The Control of Monetary Policy

The note-issuing monopoly and the control over quantity and price of credit are at present in the hands of the Bank Deutscher Laender (B.d.L.). It has the power to vary minimum reserve requirements, fix discount rates, conduct open market operations, and in general lay down regulations determining the credit policy of all Land Central Banks (L.Z.B.). It must consult with and take directions from the Allied Bank Commission (A.B.C.), a tripartite body consisting of U.S., British and French elements. It has been the policy of the A.B.C. to allow the B.d.L. more and more scope and to wean it gradually from dependence on Allied directives. With the establishment of the Federal German Republic in 1949 it became necessary to provide for the eventual creation of a Federal Central Bank, and Article 88 of the basic law establishing the new state provides for the setting up of such a bank (Bundesbank). It is of course clear that the B.d.L. is fated to become the Bundesbank and the main problem involved is how far the new statute to be presented to the Federal Parliament (Bundestag) shall allow the government to direct the policy of the Bundesbank.

The first proposals published early this year repeated with slight variations the provisions of the law establishing the B.d.L., but provided the main bone of contention in the articles setting out the relations between government and Bank. It was proposed to nominate two members of the government to attend—without a vote—the meetings of the Board of Directors.[1] If these nominees disagreed with a decision made by the Board of Directors, the government was to have the power to refer the question to a Federal Commission. The chairman of this Commission was to be appointed by the President of the Federal Republic, the government and the Bundesbank appointing five members each. The chairman was intended to have the casting vote.[2] The B.d.L. objected strongly to this proposal, claiming that it would shift authority for credit control from the B.d.L. to the Federal Commission. It declared that at most it was willing to allow government objections to its policy to be accepted, if upheld by a " qualified minority " of the Board of Directors.

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[1] This is the policy-making organ of the B.d.L.

[2] More recently it has been proposed officially that the following should be members of the Commission: Federal Chancellor (chairman with casting vote), Minister of Economics, Minister of Finance, President and Vice-President of the Board of the Federal Central Bank, and one nominee of the Central Bank. It will be noted that the government would still be in a position to out-vote the Bank.

The technique by which the government attempts to achieve control over banking policy is, of course, a minor matter. The position is complicated in Germany, because of the existing split in the responsibility for economic policy between the Ministry of Finance and the Ministry of Economics. It has frequently seemed that the two Ministers responsible do not entirely agree on all questions.[1] The interesting point in this controversy is the fact that the Central Bank apparently believes that it is possible for it to obtain virtual independence from government control, contrary to the developments in most other countries.[2] [3] There is in Germany to-day considerable support for the development of an independent policy by the Central Bank, based to some extent on a reaction to the position under the Hitler regime. I believe, however, that the reasoning behind this preference for independence is based on a confusion of ends and means, and that government responsibility for monetary policy is inevitable and desirable.

The advocates of an independent banking policy must base their arguments on the belief that the Central Bank can be shown to have certain clearly defined non-political functions. This belief, a survival of 19th century economic thought, appears in the recent pronouncement by Adolf Weber that policy must be determined by " responsibility for healthy monetary conditions ". This dictum really only poses the problem, and does not solve it. The political character of Central Bank decisions is particularly evident in Germany's present economic conditions. Many of the difficulties under which the German economy suffers can be ascribed to disproportionalities among unemployed factors; reserves of labour are available but not the equipment to set them to work. This is due on the one hand to war time and post-war destruction of productive capacity, and on the other to the influx of refugees from the East. Fuller employment is, of course, not impossible, but it would imply inflationary price developments. Employment could be increased, e.g., by making provisions for rubble clearing, municipal amenities, etc., but since production of consumer goods cannot be increased, greater employment would create inflationary pressures in many markets.[1] Again, in the less immediate future employment could be increased by production of capital equipment to-day to absorb unemployed labour to-morrow. This, too, would involve pressure on consumer goods prices, since increases in investment must in the given situation imply decreases in production for current consumption. There are, of course, solutions to this dilemma, but they involve policies which run against the grain of Germany's attempt to establish a liberal economic system. One of these solutions, higher taxation, would probably prove a failure, since an increase in taxation above the high rates now being applied might reduce savings and production so greatly that no release of real resources is achieved. Another solution, physical controls, is out of the question in Germany's present economic mood, though the Minister of Finance, Professor Erhard, has threatened to impose some controls and thus penalise speculators. In this situation monetary policy must clearly be influenced by political considerations. A choice between stability in price levels (or " neutrality of money ") and some inflationary pressure to accelerate the absorption of unemployed labour is inevitable.[2]

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[1] The controversy about Central Bank control exemplifies this split. The proposals described originate from the Minister of Finance, Schaeffer, and it is well known that the Minister of Economics, Professor Erhard, favours an independent Central Bank somewhat on the model of the old Reichsbank. Professor Hoepker-Aschoff, an economist and member of the Bundestag, has also expressed his preference for a strongly centralised and independent Central Bank.

[2] Cf. M. A. Kriz: " Central Banks and the State Today ", *American Economic Review*, September 1948.

[3] To my knowledge, the case of New Zealand is the only one where recent legislation has provided for greater independence of the Central Bank.

In the international monetary field, too, these political considerations apply. A choice will have to be made at certain times between internal adjustments and exchange rate variation. This choice cannot be based solely on monetary considerations, since the level of employment, the standard of living, and the distribution of incomes are all greatly affected by the type of policy followed. Monetary policies are to-day not the only—indeed, at present, not even the most important—means used to protect international reserves. The movement away from the automatism of the early gold standard has removed the possibility of defining independent functions of banking policy,[1] and the new task of the Central Bank, in the words of R. S. Sayers, is to "be ready to use any device it can find to control the behaviour of the financial system *in the interest of the 'employment policy' adopted by the government*".[2] Banking policy has thus become the handmaid of physical controls and fiscal policy, a position in which its influence could be used to far greater effect than recent experience seems to indicate.[3] The supremacy of political decisions in the determination of monetary policy is therefore quite inevitable. The solution proposed by the German government must nevertheless be considered unsatisfactory since it involves the danger of reactions by the public to disagreements between government and Bank. Expectations are highly volatile in Germany to-day, and the knowledge that the Bank believes the government to be following an inflationary course may increase the public's propensity to consume and to speculate, and thus create considerable difficulties. A solution must be found which allows effective consultation between ministers and Bundesbank and yet leaves responsibility for policy clearly in the hands of the government.

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[1] This argument assumes that the rate of unemployment benefit is considerably below the pay of unskilled workers.

[2] In the long run it is possible that correct adjustments will be made, but here again political decisions are inevitable. E.g. wage reductions would not increase employment in the short run, but might do so in the long run, if the redistribution to higher income-earning groups increases savings, making possible non-inflationary increases in government expenditure or investment.

II

The Structure of the Commercial Banks

The present organisation of commercial banking in the Federal Republic is largely the result of the decentralising zeal of the U.S. Control Authorities, who managed, after some opposition, to get the other members of Allied Military Government to accept their proposals.[4] The law covering the decentralisation of banks provides that no bank shall maintain branches outside the Land in which its head office is situated, and prohibits control of banks by an institution (except, of course, the B.d.L.) outside the Land in which they operate. Bank supervision has been made the responsibility of the Land authorities. Custodians were appointed[1] in the case of the former large branch banks to take over the functions of the shareholders—they are, however, not subject to any sort of control by the shareholders.

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[1] Cf. R. Triffin: "National Central Banking and the International Economy," in *Post-War Economic Studies*, published by the Board of Governors, F.R.S., 1950.

[2] "Central Banking in the Light of Recent British and American Experience," *Quarterly Journal of Economics*, May 1949. (My italics.)

[3] Cf. Douglas Report, Senate Doc. No. 129, 1950.

[4] Cf. H. Adler, *op. cit.*

There were, of course, in Germany many banking institutions which never operated outside a relatively small area, and they are not affected by these provisions. They were aimed mainly at the three large joint-stock banks—the Dresdner Bank, the Deutsche Bank, and the Commerz-und Privat-Bank. The decentralising law did not dissolve these joint-stock banks, so that legally they are still in existence, but for practical purposes successor banks were created in every Land to operate as independent corporations under their respective custodians. The preamble of the law establishing this organisation recognised the matter would require further attention in the not too distant future and stated that this law was to provide only an interim solution until " the financial and economic structure was finally determined ".[2] It is generally believed that a final solution is now being worked out by the Federal Government and various organisations have published their proposals for such a solution.

The problems which any reorganisation of the commercial banks in Western Germany will have to solve can be split into three sections covering the legal problems, the problem of banking capital, and the problems of commercial banking operations.

1. The legal problems. Whatever the new organisation adopts, the pre-war branch banks will have to be finally dissolved, and their shareholders compensated with shares in the new corporations created. These corporations should then again come under the rules applicable to joint-stock business in general, publish balance sheets, and provide a regular account of their actions. A final legal reorganisation of this kind will also end the peculiar situation, in which—as it appears at present—a bank operating independently in one Land may be held legally liable for the debts of a bank in another Land, because these two were formerly branches of the same large joint-stock bank. There is no

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[1] In the British zone consultative boards have been appointed in addition to the Custodians. Though their functions are not clearly defined they are intended to operate as unofficial boards of directors.

[2] Cf. British Military Gov. Ord. No. 133. This preamble, however, did not appear in the revised form of the law.

argument about the need for a clarification of this position. It will be necessary to re-create the pre-war banks for the purpose of their liquidation, to enable them to draw up a final account in Deutsche Mark. They will also have to take advantage of certain special regulations to allow for a severance of their Reichsmark obligations and credits in Eastern Germany. Their final accounts will settle the amount of " Equalisation Claims "[1] to be credited to the banks.[2]

2. The problem of banking capital. The Currency Reform reduced considerably the proportion of total liabilities represented by the banks' own resources. Under the Conversion Law the banks were to show in their new accounts as their own resources either 10 per cent. of their nominal capital or 7½ per cent. of their liabilities (less capital and reserves, of course). Since their nominal capital included only published reserves they lost completely the considerable hidden reserves accumulated.[3] In general this must of course be considered as a minor matter. It is not the bank's capital, but its liquid and potentially liquid resources which safeguard its creditors.[4] Thus in September 1950 the 254 Credit Banks reporting to the Central Banking System had 22 per cent. of their outside liabilities covered by liquid assets and government securities. All the same, the effect of low capital resources of banks is of some importance in the German economy. It has traditionally been believed there that the structure of the asset side of the balance sheet should ideally be based on the structure of the liabilities side, i.e., sight deposits to be used only in short-term investment, savings deposits for purchase of long-term securities, etc.[5] To some extent this tradition was given legal status in the banking law of 1935 (K.W.G.) which laid down, among other regulations intended to safeguard liquidity, that the amount used by a bank in direct participation in enterprise

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[1] Equalisation Claims (Ausgleichsforderungen) are non-marketable Land securities bearing 3 per cent. interest (with certain exceptions). They were created to provide the banks with assets to balance their books after Currency Reform and the loss of their claims against the Reich. According to the " Conversion Law " the Central Banking System is entitled to lend on the security of Equalisation Claims or to buy them only when this is necessary to maintain the liquidity of the bank concerned. (Cf. Report of the B.d.L. for 1948–49.)

[2] It must be expected that arrangements will also be made to safeguard the position of the creditors of the old branch banks. This is a difficult problem, since the loss of the branches in Eastern Germany might mean that the banks of the Federal Republic must assume responsibility for the total of these debts.

[3] Some recent pronouncements indicate that the banks may yet be allowed to include under certain circumstances some of their hidden reserves as capital in their conversion balance sheets.

[4] Cf. A. Weber: *Depositenbanken und Spekulationsbanken*, Section VI, Chapter I.

[5] Cf. A. Weber: *Geld, Banken, Boersen*, 4th ed., p. 171.

and in real estate should not exceed the amount of its own resources. These general notions of the role of banking will, of course, be regarded to-day as representing an inversion of the real function of credit, but since they still influence the decisions of practical bankers in Germany, they cannot be completely disregarded. It is furthermore claimed that limited capital resources will tend to increase the cost of credit owing to the efforts made to accumulate reserves. It is hard to believe, though, that these effects could not —when desirable—be overcome by central bank action increasing cash reserves.[1] On the contrary, the lack of capital may make the commercial banks more responsive to central bank action by inducing them on the one hand to keep their excess reserves to a minimum so as to maintain profitability, and on the other by leading them to curtail their more speculative activities rapidly whenever the B.d.L. adopts a policy of monetary contraction. A low capital ratio may also lead to excessive caution in lending, since the banker may wish to be certain of his ability to finance losses before engaging in more risky business. On balance it may therefore be possible that the present level of the banks' capital and reserves could be a factor reducing the expansive effect of central bank action, but even if this is so it cannot be used as an argument in favour of reintegration of the commercial banks, since this development would clearly leave the overall capital/deposits ratio unchanged.

At this point it is convenient to consider one argument often advanced in favour of a re-centralisation of German banking. It is claimed that the capital resources of the successor banks are not large enough to allow them to play their part in the promotion of foreign trade. Although it is true that in certain respects the small banks cannot fulfil their functions in this field as well as the pre-war branch banks, this does not mean that their capital resources are insufficient. Political considerations—apart from controls imposed on capital movements—impede the flow of private foreign funds into Germany even at the very attractive rates of interest ruling there to-day, and a consideration of the size of banking capital can hardly be said to be of any importance.

It is clear that none of the considerations concerned with the amount of the capital resources available to the banks can be used to prove the desirability of greater concentration of commercial banking. We must now investigate other and more substantial arguments in favour of re-integration.

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[1] A. Weber: *op. cit.*, states that the banks' capital was equal to 100 per cent. of their deposits in 1891, $23^1/_8$ per cent. in 1913, and 8 per cent. in 1930.

3. The problems of commercial banking operations. The decentralisation of banking in Germany has reversed the normal development observable in every country in which legal restrictions have not impeded integration. The new difficulties arising are therefore exactly those which are overcome by integration. They can be divided into the following sections :—

(*a*) Severe regional restriction of banking operations makes a diversification of risks very difficult. This is obviously so where there exists a geographic pattern of distribution of industry. The concentration of industry in certain parts of Germany, e.g., coal and steel in the Ruhr, gives this point some—though not overwhelming—importance. It would, of course, be possible to overcome this difficulty by the growth of financial centres and bill financing, but particularly in the circumstances of present-day Germany direct bank loans must be regarded as the most important means of business finance.

(*b*) The total resources of the successor banks are insufficient to allow any one bank to grant large credits. This applies especially if we remember that German banks have always considered as one of their main tasks the provision of " interim finance ", i.e., they have acted as issue houses and underwriters. Long-term capital has been provided in the first instance by the banks, who later issued securities of the firms concerned to provide funds for repayment of the loan. The banks also undertook to support these securities on the Stock Exchange. Again, a solution of this problem is possible without re-integration. Several banks could co-operate in the granting of large credits,[1] and new specialist institutions could take over the task of issue and support of securities.

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[1] This method of co-operation between banks is well known in the U.S.A. Cf. R. S. Sayers: *American Banking System*, p. 40. It provides a means of risk-spreading as well as financing large firms. For some of the problems involved in the provision of syndicated term loans see E. J. Hopkins, " Long-Term Needs of Small Business " in *Post-war Economic Studies*, No. 5 (Board of Governors, F.R.S.).

(*c*) Differences in the economic structure of the various Laender must lead to the appearance of surplus and deficit areas seasonally as well as structurally. Integrated branch banks will directly and automatically provide the required mobility of funds through administrative action at the head office. A unit banking system can obtain this mobility through the use of the services of a bill market, the correspondence system, or the rediscounting facilities at the Central Bank. In Germany to-day the bill market is almost non-existent and would only cover that part of bank finance which can be covered by bills of exchange. The correspondent system, though widely used, has not yet sufficiently developed to act as an equilibrating mechanism so that this task must be fulfilled largely by the Central Bank. If we take loans from the B.d.L. to the L.Z.B.s as a rough indication of the differences between surplus and deficit areas, we see that in October 1950 these loans varied from 0 per cent. of the total of the liabilities of the L.Z.B. of Bremen to 55.5 per cent. in the case of Schleswig-Holstein. While there is no doubt that the mobilising function can be fulfilled in this way, it involves extra costs and uncertainties for the individual banks.

(*d*) Probably the most important argument against a continuation of the present organisation of commercial banking in Germany is based on a consideration of the costs involved. The ratio of overhead costs to the volume of business transacted tends to fall with increasing business volume. This can be attributed mainly to the fact that certain departments, indispensable to an efficient bank, can serve a wide area without an increase in costs, a clear case of economies of scale. Indeed, in a system of unit banking the cost of certain operations, as e.g. the maintenance of branches abroad, may be prohibitive for any one bank. Excessive decentralisation implies therefore an uneconomic use of resources by the banking system.

I have attempted to argue that the German banks could function reasonably well, even on the basis of their present organisation, but that this would make for costly and difficult operation. If in addition we remember the natural preference of German bankers and businessmen for larger branch banks, the weight of argument in favour of re-integration is considerable. The abandonment of the Morgenthau-Bernstein plan and the deviation from the Potsdam agreement mean that decentralisation of banking is no longer a policy consistent with the political structure of Western Germany. The belief that a unit banking system would be less efficient in supporting an aggressive government was always fallacious, and the elimination of control over industry by banks could be achieved in other ways. The U.S. authorities have recently expressed their willingness to allow an enlargement of banking regions, and the British are known to have opposed decentralisation from the start.[1] There is thus no *a priori* reason against the re-establishment of large branch banks operating over the whole area of the Federal Republic, but since a large section of American official opinion is still opposed to this course, a compromise solution has been proposed and will probably be made the basis of legislation in the near future.

The proposed plan[2] involves the creation of three banking regions with freedom for banks to operate over the whole of any one region; these are:

A Northern Region, including Hamburg, Bremen, Schleswig-Holstein, Niedersachsen.

A Western Region, including Nordrhein-Westfalen, the districts of Trier and Koblenz.

A Southern Region, including Hessen, Wuerttemberg-Baden, Bavaria, Baden, Wuerttemberg-Hohenzollern, the remainder of Rheinland-Pfalz.

The financial centres of these regions will probably be established at Hamburg, Dusseldorf, and Frankfurt respectively. The regions have been chosen to allow greater diversification of banking risks, while " bearing in mind the traditional economic, cultural and ethnic relations and affinities between Lands ". The main advantage of the proposed reorganisation lies in the elimination of the separate operation of the successor banks in the smaller Lands. On the basis of the December 1949 figures, after the change to larger banking areas, none of the successor banks would have a balance sheet total of less than D.M. 168 million, and six out of the nine would have a total of over D.M. 400 million. Since detailed balance sheets and profit and loss accounts have not been published by the banks since Currency Reform it is difficult to estimate the saving which would result from this reorganisation. The framers of the plan estimate that costs will be reduced by ½ to 1 per cent. of the balance sheet total.

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[1] Cf. H. Adler, *op. cit.*, p. 325.

[2] This proposal has been put forward by three well known bankers: H. J. Abs, C. Goetz, P. Marx.

While the plan explicitly stresses that this reorganisation need not involve a change of the central banking system, it does so only because its acceptance might be seriously delayed if it had to be coupled with changes in central banking organisation, and it is generally accepted that the proposed enlargement of banking regions will sooner or later lead to the elimination of at least some of the L.Z.B.s in their present form. We must therefore now turn to a consideration of central banking organisation.

III

The Organisation of Central Banking

As I have mentioned in the introduction, the present structure of the German central banking system is modelled largely on the Federal Reserve System. There are, however, significant differences.[1] The L.Z.B.s cover smaller areas than the Federal Reserve Banks, and the German system has been equipped with a strong central institution at the top, the B.d.L. The Board of Directors of the B.d.L. consists of President, Vice-President, and the Presidents of the eleven L.Z.B.s. These eleven are appointed by the Prime Ministers of the Laender. The Vice-President of the Board is at the same time the President of the Board of Managers of the B.d.L. In the same way as the commercial banks keep legal reserve deposits with their L.Z.B., the L.Z.B.s keep legal reserve deposits with the B.d.L. The L.Z.B.s clear transfers from bank to bank within each Land, while all inter-Land transfers go via the B.d.L. The B.d.L. also acts as banker to the Federal Government and to the occupation authorities, and administers foreign exchange control.

The Board of Directors of the B.d.L. is the sole authority determining monetary policy.[2] It lays down precise rules regulating the behaviour of the whole system. It will therefore be seen that the L.Z.B.s are strictly dependent on the B.d.L. Their main function is the application of B.d.L. decisions to their Land. They are apparently independent in the granting of credit to the banks, but since they must follow the rules of the B.d.L. with respect to rates of interest and form of security, their independence is largely illusory. In fact, therefore, they are merely branches of the B.d.L. and they are only of importance since they provide the members of the Board of Directors of the B.d.L. It is rather doubtful whether this method of appointing the Board is the most efficient that can be devised. It is therefore clear that once the reorganisation of commercial banking outlined in Section II above has been carried through, the justification for the existence of the number of L.Z.B.s now in being will completely disappear and they would merely constitute an unnecessary expense. Vested interests have, however, grown up in connection with the L.Z.B.s. While the Presidents of these institutions are probably reasonably willing to vote themselves out of office, the major resistance to such a move would come from the Land governments. They consider these banks as their own, and fear that their disappearance would make it more difficult for them to get loans. Thus it will not be easy to disband the L.Z.B.s even when they no longer fulfil any separate functions.

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[1] Cf. O. Veit: *Deutsche Geldpolitik*, Part I.

[2] Cf. above, Section I.

It is often claimed by central bankers in Germany that the reorganisation of commercial banking plus the disappearance of most of the L.Z.B.s would weaken the power of control over credit.[1] This argument is based on a consideration of the pre-war position of the banking system and seems to ignore the effect of statutory minimum reserves. The main factors can be set out briefly. The giro system rather than the cheque system has been, and is, the main method of German monetary transfers. In this system the payer advises his bank of a payment he wishes to make, giving name and bank of the payee. The debt thus becomes one to be settled by delivery rather than one to be paid on presentation of a cheque.[2] Since the danger of having

[1] To by-pass this objection the plan discussed in Section II provides that inter-Land transfers shall continue to pass through the central banking system, even where branches of the same bank are concerned.

[2] This system provides the banks with one incidental advantage. Current accounts carry interest in Germany, and since any transfer is debited at once to the customer's account, the banker has at his disposal what amounts to an interest-free deposit until the transfer is completed. There is no evidence that this fact is unduly exploited.

to pay out cash involves the holding of reserves which pay little or no interest, there grew up in Germany clearing institutions which enabled the various financial institutions to centralise reserves.[1] The existence of reserves outside the Central Bank made it possible to counteract the operations of the Reichsbank. This was so because there was no legal or traditional requirement of a fixed cash reserve ratio. The introduction of legal minimum reserves has radically changed this situation. Given the statutory ratio and the figure for bankers' deposits at the L.Z.B.s, the possible maximum total of bank money is directly determined. The Central Bank can then influence monetary conditions by either varying cash ratio or changing the amount of bankers' deposits or by a combination of these policies. Commercial banks will be able to counteract a restrictionist Central Bank policy only if they hold excess reserves, and it appears to be this danger which excites the minds of Germany's central bankers. The German tradition against borrowing at the central bank may lead to the growth of additional reserves at the clearing institutions, and with these reserves the banks could of course pursue policies differing from those pursued by the B.d.L. The position may be likened to the "window-dressing" policy of the British banks before 1947. They too were able to combine variations in actual reserve ratios with stability of published cash ratios. The B.d.L. has a weapon, though, which can be used to absorb excess reserves. Variation of legal reserve ratios is most admirably suited for this purpose, it works quickly and effectively. Commercial bankers can therefore be trained to dispense with excess reserves and to develop the habit of settling via the central bank.

Conclusions

We may predict with confidence that significant changes in the structure of the Western German banking system will be made in the near future. The partial re-integration of the commercial banks appears to be the first likely step to be taken, not because it is the most important, but rather because there is least resistance to it. The next step will be the creation of a Federal Central Bank (Bundesbank). The degree of formal dependence of this bank on government directives is still under discussion. Finally, and this is least certain, the L.Z.B.s will be abolished or their number greatly reduced. It is a sad reflection on the obstinacy of vested interests, that this change, making hardly any real difference in the German banking system, should be most stubbornly opposed.

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[1] The main giro nets were the postal giro net, the giro nets of the large branch banks, the giro net of the savings banks, and the giro net of the co-operative banks.

Proposals for a programme of reform may be outlined as follows :—

1. A Central Bank (Bundesbank) should now be set up in Germany, which even if not formally under government control, is conducted in such a way that its policy is determined with reference to the political aims of the government. Contact between government and Bank should be frequent and informal, and differences must not be made public.

2. Commercial bank operations should be extended over a wider area. Failing the re-creation of nation-wide branch banks the Federal Republic should be divided into not more than three regions, within each of which banks should be allowed to open branches.

3. The pre-war branch banks should be finally dissolved and their shareholders compensated with shares in the newly created banks. The position of their creditors must be safeguarded.

4. The system of Central Land Banks (L.Z.B.) should be completely abolished, turning the present L.Z.B.s into branches of the Bundesbank. If this policy is not acceptable, one L.Z.B. ought to operate over each of the three banking regions referred to above, reducing the number of L.Z.B.s from 11 to 3.

5. To complete the programme, bank supervision should be taken out of the hands of the Land governments and made the responsibility of the Bundesbank.

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The Removal of Trade Barriers: The Regional versus The Universal Approach[1]

By J. E. MEADE

The draft Charter of the proposed International Trade Organisation and the text of the existing General Agreement on Tariffs and Trade are attempts to remove barriers to international trade on as non-discriminatory and multilateral a basis as possible among as many countries as possible. Mr. Brown's book is a thorough and scholarly account of the contents of these two instruments,[2] of the intricate relationships between them, and of the protracted, complicated, and difficult negotiations which led up to them. The compromises which finally emerged constitute a notoriously verbose and sometimes unsystematic interweaving of rules, exceptions to rules, and exceptions to exceptions to rules, concerning a very wide field of commercial and economic policy. Mr. Brown's appendix of almost 200 pages in which he attempts a systematic analysis of the obligations, rights, and other contents of the I.T.O. Charter on all the topics covered, should be of great use as a source of reference for all those who are doing serious work in this field.

It is as difficult to review Mr. Brown's book in a few sentences as it would be to review an encyclopedia in a few paragraphs. It is in fact a quite indispensable work of reference for those who want to know what these two international instruments contain and (what is often necessary for that purpose) how they came to contain it. It deals essentially with a very large number of particular issues in commercial policy, most of great importance and many of considerable intellectual interest. But to pick and choose between them for the purpose of a review would be merely to give a very unbalanced impression of the whole comprehensive work.

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[1] Williams Adams Brown, Jr.: *The United States and the Restoration of World Trade.* The Brookings Institution. Washington, D.C. 1950. pp. xii + 572. $5.00.

Jacob Viner: *The Customs Union Issue.* The Carnegie Endowment for International Peace. Stevens and Sons Ltd., London, 1950. pp. viii + 221.

Jean van der Mensbrugghe: *Les Unions Economiques.* Institut des Relations Internationales. Brussels, 1950. pp. 396.

[2] In what follows we shall refer to them simply as the I.T.O. Charter and the G.A.T.T.

As the title of his book suggests, Mr. Brown is writing primarily for the United States reader. It is part of his purpose to show how the formation of the I.T.O. Charter and the G.A.T.T. was in the tradition of, indeed mainly inspired by, the new American commercial policy initiated by President Roosevelt and Mr. Cordell Hull in 1934. Mr. Brown is very frank and fair on all this. He does not only—with perfect justification—claim the present attempt to get rid of trade barriers as a great American initiative; but he also brings unashamedly to light the cases in which American national prejudices and policies have themselves impeded this attempt and have moulded the final documents into something less "liberal" than might otherwise have been the case. The chief example of this is the American agricultural policy which has been the main reason for insisting upon an agricultural escape clause for the use of quantitative import restrictions and for very lenient rules about export subsidies.

As a conclusion of his painstaking review, Mr. Brown recommends that the United States should accept the I.T.O. Charter; as a second best he urges that the United States should centre its commercial policy around the already existing G.A.T.T. It is clear from the recent Torquay meeting of the contracting parties of the G.A.T.T. that this second best is the policy which the United States administration has now decided to adopt. In view of this, very special interest attaches to Mr. Brown's Chapter IX which shows very clearly how much is preserved and how much is lost by failure to ratify the I.T.O. Charter but by continued adherence to the G.A.T.T. The G.A.T.T. does not contain the full-employment, restrictive-practices, or commodity-agreement sections of the Charter. It does, however, contain practically all the commercial policy obligations, but with a few notable modifications. For example, the G.A.T.T. rules about subsidies are even more lax than the I.T.O. rules; and the G.A.T.T. does not contain the I.T.O. provisions for the institution of new preferential arrangements for the economic development of undeveloped areas. Moreover, at present under the G.A.T.T. the contracting parties undertake to apply the general commercial policy obligations of the I.T.O. Charter only to the fullest extent not incompatible with their existing legislation. It seems, however, certain that for the time being at least we must reconcile ourselves to making the best of the G.A.T.T. as the international instrument for the commercial policy of the countries of the free world. The International Trade Organisation is, alas, hibernating for a winter of quite indeterminate length.

With the "universal" approach of the G.A.T.T. to the problem of reducing trade barriers one may contrast the "regional" approach, under which a restricted number of countries attempt to get together to reduce or remove the barriers between themselves on a discriminatory basis, i.e., without removing them on their trade with outsiders. The contrast must not be drawn too sharply because the G.A.T.T. itself allows exceptions from the rule of non-discrimination for full customs unions or free-trade areas, for existing imperial preferences, and temporarily for balance-of-payments reasons. Indeed, the G.A.T.T. itself is in the nature of a club whose privileges are not necessarily accorded to non-members, though, of course, it is a club which is open to everyone who will pay the subscription fee. But on the whole the contrast is a very fair one, as can be seen from a careful reading of Mr. Brown's Chapter XII on "The Two Instruments and the Solution of European Economic Problems". Whatever may be done to paper over the cracks, there *is* some definite conflict between the two American policies of pressing for the fullest measure of non-discrimination and pressing for the special removal of barriers to intra-European trade. Because the full customs union has generally been recognised, and is recognised in the I.T.O. Charter and the G.A.T.T., as a legitimate exception to the rule of non-discrimination, the movement for European economic integration has been pushed in the direction of the complete customs union rather than of the partial preferential area.

A good book on the subject of the customs union has for long been wanted; and now it is provided by Professor Viner's study, which it is difficult to praise too highly. The annotated list, running to nearly thirty pages, of previous official conventions, decrees, etc., concerning customs unions and the forty-page bibliography on the subject, will clearly be of great use to future students of this subject. But it is Professor Viner's own comparatively short analysis of the problem (of only 138 pages) which marks the book so clearly with the stamp of excellence.

Professor Viner compresses a great deal into his short study. There are interesting and informative studies of the extent to which in the past the mutual arrangements between the members of full customs unions have been regarded as a legitimate exception to obligations incurred in the most-favoured-nation clauses of commercial agreements with third parties; of the other main types of preferential arrangements—such as imperial preferences, regional economic arrangements, and plurilateral arrangements to which outsiders are permitted to adhere on equal terms—which have from time to time been claimed as legitimate exceptions to Most-Favoured-Nation obligations; and of the attitude taken towards customs unions in the drawing up of the I.T.O. Charter and the G.A.T.T. These studies will be of particular interest to specialists in the field of commercial treaties.

There is also a very interesting chapter on the political aspects of customs unions. Professor Viner argues very persuasively from the historical evidence that it is wrong to suppose that customs unions normally precede political unions. The German Zollverein is something of an exception to what appears to be the more general rule that political union leads the way and economic union only then can follow successfully. This, if true—and here is surely a stimulating subject for extensive political-economic historical research—should have an obvious moral for those who are interested in the present attempts to build an Atlantic Union. To the present reviewer, at any rate, it appears probable that a fairly close political union on questions of defence and foreign policy is, in present conditions at any rate, a necessary prerequisite for any extensive advance towards economic union.

But it is Chapter IV of Professor Viner's study—on the economic aspects of customs unions—which will be of central interest to economists. Indeed for many years this is likely to remain the *locus classicus* for the economic analysis of customs-union problems. In this chapter the author covers a number of questions, including such matters as:—the extent to which customs unions are proposed really with the objective of forming a larger economic bloc which, by its increased bargaining power in commercial negotiations, can turn the terms of international trade in its favour ; and the extent to which the effects of a customs union in eliminating the high cost industries of the member States are likely to be frustrated by the growth of cartel arrangements which will continue in a different form the protection previously given to those high-cost industries.

But the central problem discussed in this chapter is whether the customs union should be regarded as a limited movement towards the free-trade position or as another type of protective device designed to extend the preferential markets of the member States. Is it likely, in other words, to cause a shift of demand on to or away from cheaper sources of supply ? Professor Viner conclusively shows how a customs union might do either of these things. Let us suppose that countries A and B remove all obstacles to the trade between them without reducing their barriers to trade with C, the rest of the world. Either of two results are possible. (i) The main effect may be that A's uneconomic industries are now undercut by economic production in B and *vice versa*. In this case new and economic trade appears between A and B ; more economic sources are used in A and B and less economic sources are abandoned in A and B ; there has been a limited movement towards the free-trade position. (ii) The main effect may, however, be quite different. A now buys from B what she previously bought from C. This product is more cheaply produced in C than in B, and with a non-discriminatory duty in A will therefore be bought from C rather than from B. But when the duty on B's products is removed but that on C's product is maintained, A buys from B. Instead of a trade-creating effect there has been a trade-diverting effect, moving demand away from cheaper on to less economic sources of supply.

Professor Viner points out that there is no logical difference between a partial preferential arrangement and a full customs union—which is, after all, only a system of 100 per cent. preferences on 100 per cent. of the items of trade—in so far as this distinction between trade-creating and trade-diverting effects is concerned. Either system may have predominantly the one or the other effect. To anyone who has had to argue with United States negotiators against the view that imperial preferences are the unforgivable sin and become more wicked the bigger and more extensive they are, whereas a customs union with its 100 per cent. preferences on 100 per cent. of the trade is very nearly the height of virtue, this argument from so distinguished an American economist will come as a breath of fresh air.

But this bracing breeze turns into a cold douche, when Professor Viner proceeds to produce an argument in favour of customs unions rather than partial preferences, which the present reviewer, at any rate, must admit to be powerful and convincing. In negotiating a partial preferential system the parties concerned can deliberately pick out for the granting of preferences those items on which the trade-diverting effects are likely to be most pronounced and can deliberately refrain from granting mutual concessions on those items of trade in which the trade-creating factors are likely to be most important. Thus they can extend the market for each other's uneconomic industries at the expense of outsiders and avoid the disturbances to their own uneconomic industries which free competition from their partners might in some cases involve. But with a customs union which involves automatically a 100 per cent. preference on every item, the negotiators must accept the trade-creating as well as the trade-diverting effects of the system.

On pages 51 and 52 Professor Viner lists under seven headings the factors which are likely to decide whether a particular customs union has mainly trade-creating or trade-diverting effects. Condition (3) in this list is apparently paradoxical and highly controversial. He says that " a customs union is more likely to operate in the free-trade direction . . . the *less* the degree of complementarity—or the *greater* the degree of rivalry—of the member countries with respect to *protected* industries, prior to customs unions " ; and to this he adds a footnote which states, quite accurately, that " In the literature on customs union, it is almost invariably taken for granted that rivalry is a disadvantage and complementarity is an advantage in the formation of customs unions ".[1]

The truth in Professor Viner's contention may be illustrated by a hypothetical example. Consider a world made up of two countries, A and B, which produce manufactures, and two countries, C and D, which produce primary products. A is best fitted to produce cotton cloth, but could also produce woollen cloth; B is best fitted to produce woollen cloth but could also produce cotton cloth; C is best fitted to produce raw cotton, but could also produce raw wool; and D is best fitted to produce raw wool, but could also produce raw cotton. If we start with a world of non-discriminatory import duties, a customs union between A and B is likely to be trade-creating; with general protection both A and B will produce both cotton and woollen cloths, but with a customs union between them A's relatively inefficient production of woollen cloth is likely to be undercut by B's efficient industry, and B's inefficient production of cotton cloth is likely to be undercut by A's efficient production. But a customs union between A or B on the one hand and C or D on the other is likely to be mainly trade-diverting. Consider a customs union between A and C. Previously A will have imported raw cotton from C and raw wool from D; but now that imports from C are untaxed, she may import both from C and neither from D. C, on the other hand, will previously have imported cotton cloth from A and woollen cloth from B; but now that imports from A are duty-free she is likely to import both from A and neither from B. The customs union between the rival economies (A and B) has been trade-creating and that between the complementary economies (A and C) has been trade-diverting.

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[1] It is, however, interesting to note that M. Jean Van Der Mensbrugghe on page 222 of the third book under review expresses an opinion similar to that of Professor Viner : " Si deux pays sont parfaitement complémentaires, une union entre eux ne modifierait pas leurs structures économiques et ne leur procurerait que des avantages indirects. Si au contraire

And yet common sense continues to revolt against the idea that customs unions should be promoted between competitive rather than complementary economies; and common sense has something to be said for it. What after all does complementarity between two economies mean? Surely that there are very wide divergences between the comparative costs which would rule inside the two economies in the absence of trade. Thus, in the above example, if there were no international trade A would have to produce her raw materials as well as her finished cloth, and could

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ils sont concurrents et si les rendements relatifs sont différents, l'union procurera de grands avantages en permettant une rationalisation et une spécialisation des activités." The present reviewer can also claim to have tried verbally to teach the view that customs unions are more desirable between competitive than between complementary economies. But as a result of fierce opposition to this view, particularly from Dr. Helen Makower, he has moved much nearer the more normal view as is indicated by the argument in the text of this review.

do so only at a very high cost in terms of finished cloth; and C would have to produce her finished cloth as well as her raw materials and could do so only at a very high cost in terms of raw materials. Freeing trade between A and C would now lead to enormous gains.

These gains are likely to be much greater than the gains to be reaped by freeing trade between A and B. The increase in the amount of trade may be as great when A concentrates on producing cotton cloth for A and B, and B on producing woollen cloth for A and B, instead of each producing its own, as it is in the case in which A produces cloth for A and C, and C produces raw materials for A. We cannot really measure the extent of the gain solely by the extent of the trade which is created (as opposed to diverted). If the differences in comparative costs in A and B between woollen cloth and cotton cloth are small, an enormous extension of trade may represent a trivial gain; but if the differences in comparative costs in A and C between cloth and raw materials is great, a small increase in the volume of trade may represent a great economy of effort.

One can surely put the good sense of the matter in this way: a customs union is likely to lead to a more economic use of resources if it is between economies which are *potentially* very complementary (i.e., would produce very different things in a free-trade world) but are *actually* very similar or, if you like, "rival" (because protection is so extreme as to make each rely on its own production even for those things which it is least suited to produce). A customs union between (potentially) extremely complementary economies is perhaps unlikely to be trade-creating for the very simple fact that in such extreme cases protection is not likely in the first case to be driven to the point at which trade is cut off and the economies are made similar or rival. Grape production is not heavily protected in Scotland. On the other hand, a customs union between (potentially) very rival or competitive economies is unlikely to be creative of any trade which is important from the point of view of real economy of effort. For an economically desirable customs union one must search for a group of countries which are (potentially) sufficiently alike for them in fact to have imposed trade barriers on a scale sufficient to kill the trade between them, but at the same time (potentially) sufficiently unlike for there to have been really significant divergences of comparative costs in the various members in respect of those commodities, the trade in which between them has been much reduced by their protection.

Professor Viner may well in fact be saying something very like this when one takes into account his condition (4) on page 51 as well as his condition (3) which has been considered above. In condition (3) he is saying that *actual* rivalry is necessary, and in condition (4) (which states that the gain from customs union is more probable, the greater the difference in unit costs in the same industries in the two economies) he is saying that *potential* complementarity is necessary. But Professor Viner cannot be totally acquitted. He has not clearly drawn this distinction between actual and potential rivalry and complementarity ; his footnote to his condition (3) implies that he is saying something more paradoxical than is the case ; and the wording of condition (3) seems to the reviewer to be somewhat obscure.[1]

But these are all subsidiary matters. The general conclusion of Professor Viner's study, with which it is difficult to disagree, is that customs unions may often be protective devices which divert production from the more to the less economic sources of supply, and that only in certain conditions are they likely to lead to a more economic use of resources. This he rightly regards as a strong argument in favour of more universal attempts to reduce trade barriers on the lines of the I.T.O. Charter or the G.A.T.T.

In the days when tariffs were the main instruments of commercial policy and when there was much less intervention of one kind or another on the part of national governments in domestic economic affairs, the sort of commercial policy considerations which Professor Viner raises was all that was really relevant to the discussion of a customs union. These particular considerations have by no means lost their relevance ; it is still of the greatest importance to consider whether the formation of a particular economic union is likely to lead to a more or to a less economic use of resources.

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[1] There is one particular obscurity. In his condition (3) he argues that a customs union is more likely to be beneficial " the greater the correspondence in kind of products of the range of high-cost industries as between the different parts of the customs union which were protected by tariffs *in both of the member countries* before customs union was established ". (Reviewer's italics.) On page 135 he writes : " Customs unions are not important, and are unlikely to yield more economic benefit than harm, unless they are between sizable countries which practice substantial protection *of substantially similar industries* ". (Reviewer's italics.) Does Professor Viner mean that A and C before the union must each have been protecting the same industry or industries ? If so, why ? A, in the example of the text, need not protect the production of cloth nor C the production of raw material ; but A must have protected the production of the raw material and C the production of cloth. But if he does not mean this, what does he mean ?

But the great growth of other instruments of commercial policy (such as quantitative trade and exchange controls) and of governmental interventions in domestic economic affairs has raised a host of other considerations. Professor Viner is well aware of this. He points out how the removal of import duties may be irrelevant if other controls over trade and payments are maintained; and he shows how national economic planning of certain kinds at least may have the effect of making meaningless the argument that a movement towards free trade brings with it a concentration on economic sources of supply. But he does this merely as a warning about the irrelevance in certain situations of some of his analysis; the core of his analysis is not concerned with these other instruments of commercial policy nor with the effects of governmental interventions of various kinds.

Yet it is these aspects of the problem which are perhaps most prominent to-day; and the most serious present attempt to form a regional economic union—namely, the Benelux Union between Belgium, the Netherlands, and Luxembourg—is seriously endangered by obstacles which arise from just these problems. For this reason M. Jean van der Mensbrugghe's book is much to be welcomed. This book is really misnamed. It is in fact a study of Benelux. His chapters on other projected unions are brief and insubstantial compared with his lengthy and detailed study of Benelux. Even his study of Benelux is not well proportioned. The passage (no less than 160 pages) in which he describes in detail and rather independently of each other the economies of the two countries is too long relatively to the very interesting but much briefer sections in which he analyses the difficulties of the projected economic union. Nevertheless, in spite of such imperfections of construction, this book is a highly instructive account of the problems of the formation of the Benelux Union.

It starts off with a succinct and informative historical account of the stages through which the negotiations for the Benelux Union have passed, bringing the story up to the autumn of 1949. This, together with the texts of the various official documents on the subject which are appended to the volume, enables the reader to get a very good general picture of the difficulties which have confronted this attempt to form an economic union.

The negotiations for the union started in 1944; the common tariff, i.e., the pure *customs* union, went into effect at the beginning of 1948; but the other steps towards full economic union—that is to say, the removal of barriers to trade other than import duties, the removal of exchange controls, the freeing of movements of labour and capital between the constituent members—are practically as far off as ever. In the modern world it is comparatively easy to agree on the removal of import duties and upon a common tariff against third parties,[1] because import duties are no longer the only, nor indeed the most important, weapon of control. But it is a totally different matter to get rid of all other obstacles to trade and to factor movements.

M. van der Mensbrugghe mentions a number of such difficulties in the course of his study :—

(i) The planning of agriculture in both countries has necessitated a special agricultural protocol to enable each country to have its own policy for the valorisation of its own agricultural produce and to permit the necessary controls over imports, even from other members of the union, to protect these national schemes.

(ii) The cheap-money policy of the Netherlands which has relied more upon direct quantitative regulations than upon dear money to keep inflationary pressures under control, has introduced an "institutional" incentive to move capital from the Netherlands to Belgium, although "economic" considerations may rather require a movement of funds from Belgium to the Netherlands where war damage was much heavier. This has in turn made it difficult to remove the Dutch exchange controls which prevent movements of funds into Belgium.

(iii) Greater direct governmental regulation over new investment is exercised in the Netherlands than in Belgium, and this has led the Dutch to fear that a full economic union with Belgium would cause new industries to be set up in Belgium rather than in the Netherlands, not because they were more economic there, but in order to avoid the governmental regulations.

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[1] Even in this task the difficulties must not be underestimated. M. van der Mensbrugghe (p. 28) points out the difficulties caused by the facts that: the classification of the Belgian tariff was methodical while that of the Dutch was alphabetical; the Belgian specification was very detailed and the Dutch undeveloped; the Belgian duties were in the main specific, and the Dutch *ad valorem*; in the Belgian tariff those products which were not mentioned were taxed at the most nearly applicable rate, while in the Dutch tariff only those products which were actually named were liable to duty.

(iv) Dutch industries are organised into government-sponsored groups which, the Belgians fear, might have the power of taking joint actions prejudicial to Belgian producers which the Belgian producers would not have sufficient monopoly power to counteract.

(v) Indirect taxes are much more important relatively to direct taxes in Belgium than in the Netherlands. This leads to two problems. If the customs frontier between the two countries is to be totally removed, the indirect-tax systems must be more or less unified in order to remove the incentive to concentrate the production of any commodity not in that one of the countries in which production is really more economical, but in that in which its production is subject to a lower rate of excise duty. Large differences in rates of direct taxation may give incentives to labour and capital to move from areas of high tax to areas of low tax, even though their real productivity may be higher in the former areas.

All these problems are important; but they pale into insignificance in comparison with the difficulties to economic union caused by the present balance-of-payments disequilibrium between the two countries. The Netherlands has a seriously adverse balance of payments both with Belgium and with the rest of the world: the Dutch suffered much more extensive war damage than the Belgians; their pre-war overseas territories in the East Indies have been through a period of much greater disturbance than the African territories of Belgium; they depended much more than did Belgium upon the entrepôt trade with Germany which suffered so heavily after the war; and the Dutch have been through a much more intensive experience of inflation suppressed by direct controls—which is liable to draw supplies away from export markets—than have the Belgians who have relied more upon the old-fashioned medicine of dear money to prevent inflation. But whatever the cause of the phenomenon, the Dutch have experienced and are experiencing a severe strain on their balance of payments which the Belgians have avoided.

The Dutch have, therefore, been obliged on balance-of-payments grounds to maintain quantitative controls over imports and exchange controls over payments, including controls over imports from and payments to Belgium. And if the Dutch must maintain this apparatus of import restriction from the Belgians, what prospect is there that the Belgian producers will willingly watch the disappearance of the whole of their protective apparatus against the Dutch ?

If, however, trade and payments between Belgium and the Netherlands are to be effectively freed, there are logically only three possible ways of coping with the problem.

First, the Belgians could in one way or another indefinitely extend new credits to the Dutch on a scale sufficient to finance the deficit on the Dutch balance of payments. Broadly speaking, such credits would have to be on a scale sufficient to finance the whole of the Dutch deficit, including the whole of what its excess purchases from third countries would be if it removed all its balance-of-payments defences, because freedom of trade between Belgium and the Netherlands and the absence of special balance-of-payments controls over imports into Belgium from the rest of the world would mean that Dutch consumers could import indirectly from the rest of the world through Belgium at the ordinary Benelux import duty. This solution is obviously out of the question.

Second, the Dutch could return to the old rules of the Gold Standard and deflate monetarily at home, regardless of the volume of unemployment which might thereby be caused, on whatever scale and for whatever period was necessary to remove the deficit on their balance of payments. It is not impossible that some degree of monetary deflation in the Netherlands might usefully improve their balance of payments without causing much domestic unemployment. But there is no reason to believe that the problem could be cured this way without serious domestic unemployment ; and such a principle of equilibrium would obviously be a totally inappropriate one for the building of economic unions in the modern world.

Third, there remains only the possibility of fluctuations in the rate of exchange between the Dutch and Belgian currencies. It would be quite possible for the Dutch to adhere to whatever domestic financial policy they considered necessary for the purpose of preserving stability at home, to do without special Belgian or other external credits, and yet to remove abnormal obstacles to trade and payments, if the foreign exchange value of the florin was then permitted to find the level which would give equilibrium in the balance of payments.[1]

M. van der Mensbrugghe points out the great importance of these balance-of-payments difficulties in impeding the attainment of the full Benelux union. Indeed he seems to reach the same conclusion as the reviewer in one pregnant sentence on page 265: "L'union économique demande, pour être effective, que les changes varient librement entre les diverses partenaires". It is all the more regrettable that he devotes practically no space in his book to a study of the problem of the exchange rate. This would be particularly instructive in the case of Benelux where, because of the greater freedom from controls, money prices and wage rates have risen much more in Belgium than in the Netherlands, and yet it is the relatively high-cost Belgium which is in the strong creditor position.[2] Presumably the paradox is to be largely explained by the fact that the suppressed inflation in the Netherlands—the too much money chasing the (at controlled prices) too few goods—has kept supplies off the export market on an important scale.

The question of the mechanism to be used in the modern world to keep balances of payments in equilibrium is not, of course, confined to the case of regional or otherwise limited unions. If it is desired to reduce barriers to trade on a large and universal scale and to include in this programme for relaxation those restrictions which are imposed on balance-of-payments grounds, then some instrument other than unlimited "Marshall Aid" to debtor countries and other than unwanted internal inflations and deflations must be found. And there is only one such instrument: exchange-rate variations.

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[1] This was indeed the sort of solution which seems to have been contemplated in the abortive discussions about Fritalux, the projected union between France, Italy, and the Benelux countries. The possibility seems then to have been discussed of getting rid of import controls between the members and of letting fluctuations in exchange rates take their place as the regulator of balances of payments. (See article on "Fritalux" in *The Economist*, November 5th, 1949.) This highly constructive idea seems unfortunately to have perished.

[2] An example of M. van der Mensbrugghe's neglect of the exchange-rate problem is to be found in the fact that, while he gives much attention to Belgian and Dutch national indices of prices and wages, he never corrects them for variations in the exchange rate between the two countries so as to enable a direct comparison between the movements in the relative prices and costs of the two countries.

Indeed, it becomes daily clearer that perhaps the main conflict in international economic policy—at least in so far as normal peace time arrangements are concerned—is the choice between quantitative controls and fluctuating exchange rates as the means of achieving and maintaining external balance. Those who seek for an extensive removal of trade barriers must logically work for fluctuating exchange rates. Neither Mr. Brown nor Professor Viner, any more than M. van der Mensbrugghe, brings out this essential point. Indeed, in this particular army of economists, only the reviewer seems to be in step.

The London School of Economics.

Book Reviews

The Life of John Maynard Keynes. By R. F. Harrod. Macmillan & Co., 1951. xvi + 674 pp. 25s.

Not once in a decade does a book appear which economists take up as eagerly as this. They have not been disappointed. Here are the breadth, force and integrity of a great biography, and it tells of an extraordinary man.

Keynes was extraordinary in the literal sense of the word: he outsoared normal talent. Those of us who did not know him must reach him by the rule of three: in powers of apprehension and expression, what the able man is to the second-rate, that Keynes was to him. The measure of those powers, it is true, did not appear at first; from the record at school, in Cambridge, in the civil service examination, one could say only that he was in the first flight, and there is a first flight every year. But in the First World War he showed the ascendancy that is possible only when capacity goes with nerve. Mr. Harrod tells how, as a young don, Keynes "occupied the key position in what was without challenge the centre of the inter-allied economic effort, he thought out the policy, and in effect bore the ultimate responsibility for the decisions". On his resignation, a temporary civil servant aged thirty-five, he wrote to the Prime Minister a letter that reads at least as a reproach between equals, and almost as a reprimand to a subordinate. Perhaps the most remarkable and the decisive trait here, is his self-confidence. There is a sureness felt by us all when we see straightforward things in a clear light, and can be in no two minds about them; but it is rare to have this confidence in doubtful and momentous issues, where facts are complex, and inferences uncertain, and a wrong decision will bring the world about our heads. Keynes had it, the "clear-cut crisp boldness" he had missed in Sidgwick; one side of it is his fearlessness as a speculator; another, his assurance among great men in high places. His confidence began in clear insight and close reasoning; but perhaps it was enhanced by his having grown up in circles which felt no need to look afield for virtues greater than their own. College at Eton was a nest of the cleverest boys in the country, among the sons of its greatest houses and still hereditary rulers. In mathematics and philosophy, the Cambridge of Whitehead, Russell, and Moore, in economics, the Cambridge of Marshall, may have felt with reason that nowhere else in the world then was work of such importance being done. Keynes must have grown up into a sense of being always, with his friends, at the heart of the matter: to the perspicuity of his own vision was added the presumption that the other man was standing farther from the light. His self-confidence enabled him to assume great responsibilities, and made men mark his words. "Modesty," wrote Hazlitt, "is the lowest of the virtues, and is a real confession of the deficiencies it indicates. He who undervalues himself is justly undervalued by others."

It was of a piece with this sureness of the practical judgment, that Keynes as an economist was remarkable for the combination of a soaring theoretical power with a flair for what mattered most in practice. Theory excited him, and he had in exceptional degree the equipment and training to develop it; but he valued it most for its power in action, for the command it gave where else we could only fumble. "He was second to none," Mr. Harrod says, "in his logical capacity for developing a fine-spun theory; but he was entirely averse from doing so save when he believed his premises to be realistic and his conclusions applicable to life. His realism was unsurpassed among economists of his calibre. He had an extraordinary capacity for going below the surface of things. This keen sense of reality, this power of visualising how tendencies do in fact work themselves out in the market-place, is not often combined with first-class theoretical power." It is too soon yet to assign the *General Theory* its place in economics; but part at least of its power comes from its being written like a sonnet about the theme of the greatest economic issue of the day, that in which public policy seemed least able to alleviate suffering yet actually could achieve most—the issue of effective demand. Should some of the apparatus of the *General Theory* be abandoned as time goes on, or built into more general constructions, there will remain its unerring tactical sense: it was about what—once we had read it—we saw to be the main objective of the day, and it deployed the analytical forces needed to seize the initiative. On the main chance, Keynes had the gift of being right.

This pertinence gave him an evangelical force, which yet other gifts enlarged to a rare power over men's minds. He had the training of a logician, and could see the formal structure of an argument and the weakness in it. On this he put his finger not with the careful clarity of the don but with the deft tap of the wit and conversationalist. Above all, at his best he wrote English as no other man could in his day. His prose runs naturally, is sometimes slack in texture, yet even then, like an engine ticking over, conveys a sense of power in reserve. The reasonableness, the candour, the easy command of a sufficient vocabulary, set us at our ease. But then as the argument quickens and nears its goal, an imagery and an irridescence of phrase appear that enchant us. There is still no ornament, no manner, but the easy periods shine with a sudden light. Keynes indeed had the lyric gift of making simple words suddenly quicken our senses like the spurt of dust from a bullet; of writing a phrase which, once read, like the last cadence of his essay on Edgeworth, is " unforgettable, unforgotten ". He would be great as a writer of English, were he great as nothing else. In polemic, as Mr. Harrod suggests, he ranks with Swift.

He used his propagandist power under a sense at once of duty and authority: for he believed that he was one of the very few who grasped the problems of the day, and that he had to struggle against not incomprehension only but obliquity. " I get the feeling that most of the rest never see anything at all—too stupid or too wicked ", he wrote in the year of his graduation. " Our rulers," he wrote in 1918, " are as incompetent as they are mad and wicked ". In 1940 he wrote about exchange control, " I should think there were hardly more than half a dozen people in the country whose opinion is worth having ". In 1946 he found the Cabinet " a poor weak thing ". There is a forbidding side to this, a gusto in the laying on of the lash, and a lack of understanding of other people. For all the variety of his interests, Keynes moved in a narrow circle. It happened that never, in school or business or war, was he pitched into one of those mixed communities, where men of very different origins, and different habits of mind and speech, learn to work together, and come to recognise each other's goodness and ability. He believed, Mr. Harrod tells us, " in the supreme value of intellectual leadership, in the wisdom of the chosen few; he was interested in showing how narrow was the circle of kinship from which the great British leaders in statesmanship and thinking had been drawn "; " he never ceased to believe that the well-being of society depended on the strong, clear thinking of the few ". The members of any circle, who have established a close understanding with one another, and hold vital principles passionately in common, are likely to underrate the man whose habits of thought and ways of expression are different, and whom indeed they will not see at his best, because their bearing puts him on the defensive. In religious sects this is familiar; but Keynes also was a sectarian. Yet if there was narrowness in this sense of vocation, there was no vanity, and no self-seeking: rather the unrelenting weight of a unique responsibility—" and I, even I only, am left ". He sought no place for himself, his friendships were unworldly, he faithfully discharged many humble duties. " He had within him a flame of goodness ", says Mr. Harrod, and he gave his life for it.

Mr. Harrod shares his belief in the decisive influence of the few. He thinks it just conceivable that if Keynes had passed first instead of second into the Civil Service, and gone to the Treasury, there would have been no Second World War; and considers that, unless affection for the gold standard should revive, " the historian will record that Keynes, almost single-handed, killed that most ancient and venerable institution ". The sense of destiny, of momentous consultations and critical decisions, informs his composition, and casts its smoky flickering light even on its minor personages, to whose features his brush lends something of the heroic cast. It is a scene such as Hardy might have laid in *The Dynasts:* on a knoll in the foreground, and somewhat above the spectator, so that their figures seem to him of more than normal stature, stand the thinkers and statesmen, the men of light and leading, now grave, now witty, intent on some profound analysis, or gathered in a fateful eloquent debate; beyond them, on the vast plain, the nameless multitude, unseeing and unknowing, " the dishevelled soldiers sprawling over one another in sleep ", for whom the possibilities of the good life, nay even of existence itself, depend upon the prescience of the gifted few.

There is matter here of the philosophy of history. We do not know the answer, but there are grounds to think the heroic theory is not the whole of it. Decisions are taken within certain limits of the possible, and it is the multitude that fixes those limits. But is not the multitude itself moved only by the ideas others have put in its head? There is the famous ending of the *General Theory:* " the ideas of economists and philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed, the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influence, are usually the slaves of some defunct economist. . . . Soon or late, it is ideas, not vested interests, which are dangerous for good or evil ". But ideas rise out of their time, in the fulness of time; and those that take hold are the timely ones. The thinkers, like Keynes himself, whom we reckon great because of their great influence, are those whose eye catches the movement of affairs, who express what many others are groping for. These are the catalysts and the midwives of history: where are its prime movers? We do not know; but perhaps the chosen few are as much their creatures as the others are.

Those who do not share the belief of the author and subject of this book in the crucial importance of an élite, will not accept the principle of perspective on which it is composed; yet they will still find that this principle gives it unity, and imparts a gathering excitement.

There is a source of unity, too, and the stamp of personality, in its manner. Sometimes biographers are praised for standing back and letting the facts speak for themselves; but there are good ones too who tell us of their subject as they knew him, and make him live in our minds as he does in theirs. Of the two types of work, whatever Clio may say, the reader is likely to prefer the second, for its directness makes it lively, and there is a sub-plot in the interplay between author and subject, which itself will tell him more about the subject. Mr. Harrod's work is of this kind: his labours of research serve only to fill out a story which he tells as eyewitness and friend. He tells it very naturally, as one asked for his memories, letting fact, and feeling, and reflection rise together to his lips. Like a portrait, it tells us more of the sitter because we see him through the painter's eyes. There is room for many such portraits, and they will catch different likenesses.

But Mr. Harrod is exceptionally qualified for an exceptional task : he was Keynes' pupil, colleague, mentor ; he writes of him, alike as philosopher, economist, and public servant, not from external acquaintance but as one who himself has lived and thought the issues through, and often shared the master's work in them. So he follows him ardently through all his activities, " proud to be less, but of his godlike race ".

There is, indeed, a glowing Boswellian joy he finds in the contemplation of his hero, that is very moving. In 1944 he saw Lord and Lady Keynes wearing lifebelts on an Atlantic liner. " It was somehow extraordinarily impressive ", he says, " to meet them pacing the deck in this garb. They were not Lord and Lady Keynes, conventionally dressed for a reception or the opera ; they were just two human beings fitted out as was needful for the emergency—but two great human beings. One felt that one had been brought into closer contact with the pure essences of these blithe spirits. To have seen them thus was a precious and unforgettable memory ". The passage stirs memories of another seascape, and another biographer touched by an oddity : of Boswell leaning over the rail of the Harwich packet, and gazing fixedly on the receding beach, where Johnson remained " rolling his majestic form in his usual manner ".

The passage from Mr. Harrod reminds us that the power of his style lies in substance rather than form. The words, of themselves, are mostly the run of the mill ; there is seldom the flash of the unexpected. Yet the mind kindles, the eye travels eagerly on, for there is no dross or bubble here, each sentence is sound metal, the serviceable expression of a substantial thought. The writing excites and sustains intense interest, because it is the vehicle of a creative mind.

We have learned to appreciate the industry of the Victorians : here is a work which can stand with them. Great labour has gone to it, rapidly achieved ; and great discrimination, for much has been gathered, from many fields, yet nothing is without its due place in the proportions of the whole. In many ways, it has been written for posterity : in the author's sketches of his contemporaries as each comes upon the scene, in his pains to catch the spirit of the times, and preserve for later ages the elusive shades of mien and manner. And now that " his new-cut ashlar takes the light ", he may be sure his craftsmanship will stand the storms of time. When our successors judge us by our books, our shades will plead that our day and generation brought forth a work so civilised as Harrod's Keynes.

E. H. Phelps Brown.

A Reconstruction of Economics. By Kenneth E. Boulding. John Wiley, New York. 1950. xiii + 311 pp. $4.50.

From Professor Boulding we expect wit, ingenuity and technical virtuosity, and in this book all three qualities are displayed. Being dissatisfied with some aspects of current economic theory he has attempted a restatement of a number of central topics. Some sections contain highly original theoretical constructions and others present syntheses of some branch of theory, while throughout the more concise and closely reasoned analysis is interspersed with more general discussions of particular topics where many ideas are briefly brought to light and then left without further examination. The result is an entertaining, stimulating and sometimes irritating book, which should be of interest to all economic theorists.

Professor Boulding starts his book in an engaging manner by saying: "The principal advantage of a preface is that it gives the author a chance to review his own book . . ." and he goes on to take this chance, giving us an idea of what he is going to say. Reviewers other than the author may therefore perhaps be allowed to devote relatively less space than is customary to summary and relatively more to comment.

Firstly a very bald summary. The first half of the book deals with micro-economics. After a chapter on Ecology which bears little relation to what follows, Professor Boulding turns to the theory of exchange and the theory of the firm and deals with them in terms of asset structures thus using a stock approach rather than a flow approach. "Much of what the reader will find in these chapters is a restatement and generalisation of the old conclusions, which almost always appear as a special case of the more general theory." Chapter 8, "The Theory of Consumption", defines Consumption as the using up and wearing out of capital and continues by enunciating the Principle of Minimising Consumption! (There are indeed many parts of this book containing terminological sneezes which will make his fellow economists a little inclined to beat Professor Boulding.) Part I concludes with a discussion of General Equilibrium where it is suggested that economists have paid too little attention to non-price adjustments.

Part II, Macroeconomics, is less cohesive than Part I. It opens with an excellent synthesis of index number theory and an interesting discussion of the age structure of capital which, however, is not made use of subsequently. The theory of the payments structure is then dealt with, largely in terms of velocities, and this is followed by a chapter on the theory of output and employment à la Keynes, but the discussion of the relationship between the two theories is very inadequate. Then comes "A Macroeconomic Theory of Distribution" which, as Professor Boulding very rightly says, is likely to be the most controversial part of his book. A chapter on "The Economics of Government" and another on money and debt apply and expand his approach to the problem of distribution and expound the theorem of the multiplier effect of a balanced budget increase.

So much for summary; now for comment. The trouble is that Professor Boulding touches on so many matters and makes so many stimulating or provocative remarks that another book would be required for an adequate discussion. Here I shall confine myself to a criticism of Professor Boulding's theory of Distribution which seems to me to be the least useful, though not the least stimulating, part of this book. The following summary simplifies his argument and eschews his peculiar terminology.

We start with three identities:

$$\text{Income} \equiv \text{Investment} + \text{Consumption} \quad \ldots\ldots (1)$$
$$\text{Income} \equiv \text{Wages} + \text{Profits} \quad \ldots\ldots (2)$$
$$\text{Investment} \equiv \text{Profits} + \text{Borrowing} - \text{Business Hoarding} - \text{Distributions} \quad \ldots\ldots (3)$$

where Borrowing is by Firms from Households, Business Hoarding is equal to Household Dishoarding (since the quantity of money is assumed to be constant) and Distributions are income payments other than Wages made by Firms to Households (Rent, Interest and Dividends). Rearranging (3) gives:

$$\text{Profits} \equiv \text{Investment} + (\text{Business Hoarding} - \text{Borrowing} + \text{Distributions}) \quad \ldots\ldots (4)$$

and substituting for Profits and Investment in (3) according to (2) and (1) respectively gives:

$$\text{Wages} \equiv \text{Consumption} - (\text{Business Hoarding} - \text{Borrowing} + \text{Distributions}) \quad \ldots\ldots (5)$$

From the identities (4) and (5) Professor Boulding concludes that the distribution of Income between Profits and Wages depends on two factors: (*a*) the composition of Income as between Investment and Consumption and (*b*) the " transfer factor " (Business Hoarding – Borrowing + Distributions). Although admitting that his identities are truistic he assumes that the transfer factor is largely independent of Investment and Consumption and goes on to conclude among other things that " the sale of securities to the public . . . (Borrowing) . . . operates a direct force tending to reduce gross profits and expand wages " and that " the direct effect of business distributions is to increase gross profits by the same amount ".

Let us examine the first of these two statements. The first question to ask is whether it relates to the immediate, *primary* effect of a change in Borrowing or to the eventual, *total* effects when the repercussions have worked their way right through the system and a new equilibrium is reached. Since Professor Boulding talks of the " direct " effect and since he has as yet introduced no behaviour equations, we may assume the former. Then (4) tells us that the statement is correct only if, firstly, the other items in the transfer factor are unaffected by the change in Borrowing and, secondly, if investment remains unaltered. Thus the " macroeconomic paradox " of the effect of increased Borrowing is analogous to the following statement. Since: Exports ≡ Imports + (Budget Surplus – Investment + Saving) if Imports, Investment and the Budget Surplus are not directly affected by Saving, a rise in Saving will increase Exports. This statement is logically correct but misleading and uninteresting. So, I think, is Professor Boulding's. The analogy cannot be attacked on the grounds that *ex post* Investment and Saving are not independent of one another, for the same is true of the magnitudes in (4). Thus the proceeds of an increase in Borrowing will either be offset by increased Investment or by increased Business Hoarding, assuming Distributions to be unchanged. In the first case Households finance their increased lending to firms by cutting Consumption so that stocks pile up, constituting an unintended increase in Investment, while in the second case Households finance their increased lending by increased Household Dishoarding which, on the assumption of a constant total quantity of money, necessitates an equal increase in Business Hoarding. In either case Profits are not *directly* affected.

Later in the chapter, in his Model I, Professor Boulding adds some behaviour equations. He takes Consumption to be a decreasing function of the share of Profits in Income and Investment to be an increasing function. He ignores Business Hoarding and argues (too briefly to be entirely convincing) that Distributions rise faster than Borrowing with the share of Profits so that the transfer factor is also an increasing function of the latter. After constructing an ingenious diagram he draws a number of conclusions from his Model which we shall now examine.

(1) A fall in the Investment function may make the system unstable and produce a state " of acute disequilibrium characterised by a constant increase in the wage proportion and the disappearance of profits. It may well be that something of this nature happened in 1929." Now this result is undoubtedly possible within the framework of Model I, but this is built on the unrealistic assumptions that the level of Income has no effect on either Consumption or the transfer factor. Once these assumptions are abandoned, however, the result becomes much less likely. Thus, to take a very simple case, suppose that the average and marginal propensities to Consume are the same and that the transfer factor bears a constant proportion to Income. Then following a fall in the Investment function, Wages, Profits, Consumption and Investment will all fall in the same proportion. This is no less realistic than Professor Boulding's case.

(2) The model " shows clearly that a shift in the distributional proportions which is due to a change in the transfer factor may have either a favourable or an unfavourable effect on output and employment ". Now if Consumption be a decreasing and Investment an increasing function of the share of Profits, one does not need a model to understand that if, for some reason other than shifts in these two functions, the share of Profits rises the stimulus to Investment may or may not outweigh the discouragement to Consumption. What is questionable is the phrase " due to a change in the transfer factor " which (i) begs the question of whether the transfer factor *can* change

when other things remain equal and (ii) assumes that the *total* effect of a change is to alter distributional proportions whereas, as argued above, it has only been shown that the *primary* effect will be a change in proportions when (iii) some very unrealistic conditions are fulfilled.

(3) "Another valuable insight which the above model provides is that the effect of a distributional change on employment depends on the *causes* of such a change." Thus while, Professor Boulding maintains, a change due to an altered transfer factor may work either way (see the preceding paragraph) a change due to an increase (decrease) in the Consumption or Investment functions will almost always have a favourable (unfavourable) effect on employment. This is hardly surprising, even to those unacquainted with Model I which, as argued under (1), exaggerates the effect on distributional proportions.

Model II is an improvement in that Consumption is taken to be a function of Income and Investment a function of Profits. But the transfer factor is assumed to be a constant and to shift without affecting the other two functions, so that some of the objections to Model I apply here also.

The last part of this review has been very critical since I have taken Professor Boulding's statement about the controversial nature of his theory of distribution as an invitation. An equally detailed discussion of other parts of the book would have contained much less criticism and instead attempted more to follow up some of the many interesting ideas and suggestions which he puts forward such as, to name but one example, the market equation for the price of a commodity in stock terms. This must be left to readers of the book however: they will find plenty to think about.

RALPH TURVEY.

A Critique of Welfare Economics. By I. M. D. Little. Oxford. 1950. 276 pp. 18s.

Mr. Little's work is a clear and profound analysis and criticism of the "new" welfare economics—that is, of the body of economic literature on this subject which stems from Pareto rather than from Pigou, which "denies" interpersonal comparisons of utility, which uses the indifference curve as its principal analytical weapon, and which attempts to set up a logical system of welfare propositions that shall be independent of value judgments. The book forms an excellent complement to Hla Myint's *Theories of Welfare Economics* (Harvard, 1948) and to Melvin Reder's *Studies in the Theory of Welfare Economics* (Columbia, 1947). It is narrower in scope than the first, as it does not go extensively into either classical or neo-classical welfare economics, and it is less detailed in exposition than the second. Nevertheless it is a most useful piece of work, displaying both depth of philosophic insight and virtuosity in technical economics, and it lets a blast of fresh critical air into what has seemed to this reviewer a very stuffy subject. I find myself so completely in agreement with Mr. Little on almost every point that it is difficult to avoid the kind of praise which implies that the reviewer not only thinks the book is good, but would have written an almost identical book himself if he had chosen to write on this subject.

It is impossible to do justice to the depth or the coverage of Mr. Little's critique in a short review. There is a discussion first of the nature of utility, preference and choice—the concept of a preference function of some kind being the foundation of welfare economics. It is pointed out that maximising utility simply means " telling the truth " ; it is a purely formal description of the potentialities of behaviour, and does not imply any hedonistic assumptions. Welfare economics does make the value judgment however that people should have what they want : it does not penetrate to the deeper level of the critique of wants itself. If now " maximising utility " for an individual means " telling the truth ", it means that communication about these matters is possible, and therefore there are no logical grounds for " denying " inter-personal comparisons of utility. " Those who ' deny ' interpersonal comparisons must deny the existence of other minds " (p. 57).

There is therefore a real problem of the distribution of welfare which cannot be shelved. Nevertheless the " optimum conditions " of the " new " welfare economics have some validity, especially the optimum of exchange. The optimum production conditions are much more dubious because of the unrealistic nature of the static assumption, and Mr. Little pours some admirably cold water on the famous " rule " of marginal cost pricing. Consumers' surplus likewise comes in for a good raking over and emerges very much the worse for wear, and the applications of welfare economics in the theory of international trade, in the problem of public utility pricing, and in the political discussion over socialism likewise come in for rough treatment. There is also a most stimulating chapter on value judgments (which should perhaps come at the end of the book rather than in the middle), in which a certain overtone of semantics again haunts the reader—value judgments being defined as those having persuasive force—and in his conclusions Mr. Little states (p. 267) " This book might, in part, be described as a study of the usage of influential and persuasive language in economics. Wherever it has been found that the terminology of economics is, in this sense, normative, we have suggested that the ethical issues involved should be brought right into the open." He ends with a plea for " rough theory " in this field rather than for too great refinement. With this plea the present reviewer is in entire sympathy : and if Mr. Little's work can have some influence in turning economists in this vitally important field from the scalpel to the bulldozer it will have performed a great service. Mr. Little neither constructs the bulldozer nor does he do any work with one: his task is critical rather than constructive. The translation of the bulldozer economics of the classical school into modern terms is, however, an urgent necessity: if Mr. Little does not accomplish the task himself it is to be hoped that he may stimulate someone else to do it. It is to be hoped that the book will be widely read, especially by the bright young school: this is one of the books for which a review is no substitute.

K. E. Boulding.

Wealth and Income. By Brian Tew. Melbourne University Press. 1950. ix + 307 pp. 21s.

In his preface Professor Tew tells us that this book, which is published in Great Britain by the Cambridge University Press, is designed for readers with no previous knowledge of economics. In this, I think, he rather underrates the inherent difficulties of his subject matter, and readers who are not making at least a concurrent study of economics will find the going pretty stiff. But for the first or second year economics undergraduate it will provide a most admirable textbook, and many more mature students would profit from its perusal.

Both the description and the analysis are based primarily on Australian experience, though closely related to conditions in this country. This constitutes both a strength and a weakness—a strength because fundamental truths are often more easily apparent in a relatively simple economy, and a weakness because it at times inevitably involves a tendency to imply that conditions similar to those existing in Australia are the rule and those elsewhere the exception, whereas in the world as a whole the reverse may be true.

The book is divided into three sections. The first is devoted to an examination of those pieces of paper—bank-notes, bills, bonds and shares—which for most people constitute the tangible evidences of wealth. A large part of it consists of an examination of the organisation and functions of monetary authorities, treating the words in their widest sense so as to include not only central and commercial banks but also central governments. In a refreshingly original treatment, which in some ways is the best thing in the book, Professor Tew breaks almost completely with the traditional approach and deals primarily with the problems of a monetary system dominated by Government influence. His assumptions about the supply curve of money under such a system, while perhaps unduly simplified, do at any rate bear a genuine relationship to existing realities and provide a useful line of approach to the problem of an equilibrium long-term rate of interest in such conditions.

The second section is devoted to a study of the national income in a closed system. After a brief description of what the national income is, too compressed to be altogether satisfactory, there follows an analysis of the causes of changes in it, both in real and in money terms, including an explanation of the theory of the Multiplier which is probably as clear and simple as the difficulties of the subject permit. This in turn is followed by a very useful discussion of the causes of fluctuations in the rate of investment, which leads to chapters on the trade cycle, deflation, inflation and the possible means of controlling them.

At the very end of the second section and in the third section of the book we abandon the assumption of a closed system and examine the relationships between the national income and the balance of payments. There is a very good discussion of various measures which can be employed to correct an adverse balance of payments, especially depreciation of the currency, the raising of a protective tariff, and a reduction of wage rates, the effects of which are carefully compared. There is perhaps some tendency in this section to regard as normal the elasticities and marginal propensities characteristic of Australia and as exceptional those existing elsewhere, but on the whole the discussion of the difficult problems involved is admirable and will help to clear up many confusions. The book concludes with an outline of the history of the decline of the gold standard and of the development of the institutions which are trying to take its place, including the Sterling Area and the Bretton Woods organisations. In this section it would have been convenient to have an earlier indication of the date of writing (apparently December, 1948), for some of the conditions described as still existing have already become past history.

While as a piece of exposition this book is on the whole triumphantly successful, there are a number of points of detail which I hope the author will alter in his second edition. It is a little disconcerting for one who has spent many years trying to explain the difference between shareholders and creditors to be told on p. 3 that " shares . . . are the liability of the company ". The division of Mr. John Smith's property on p. 4 into material assets on the one hand and obligations (including shares) on the other would surely be more logical if material assets and titles to material assets were grouped together in contrast to money and titles to money, even though titles to material assets and titles to money are both represented by pieces of paper. Again, the description of the national income in Chapter 14, besides suffering from undue compression, treats capital formation in a way which is more likely to confuse than enlighten the beginner. In the table on p. 132 capital expenditure seems to be included twice in the right-hand column, once as profits and once as expenditure, so that it has also to be included once under the heading of income to make the account balance ; and on p. 136 the definition of gross investment in circulating assets is that which is used for net investment in the British national income estimates.

Other minor points of criticism include an exaggeration (p. 89) of the power of the central bank to control the overdraft rates charged by commercial banks to particular borrowers (rates in this country probably vary between 2½ per cent. and 5 per cent. according to the standing of the borrower and the security offered); the impression given (as on pp. 198 and 201) that the long-term rate of interest in Britain has been held almost completely stable since the war (a fall in the price of consols from 100 to under 70 in three years can hardly be called stability); the omission (especially in Chapter 20) of any indication that during trade depressions Britain's improving terms of trade offset (or at least have in the past offset) the effect on national real income of declining exports; the suggestion (p. 211) that company reconstructions take place during slumps, whereas the slump sees defaults and moratoria and the reconstructions take place during the ensuing trade recovery, if possible before the improvement in prospects is as clear to the creditors and preference shareholders as it is to the directors; and a recurrent failure (as on p. 245) to distinguish clearly between illiquidity and insolvency. All these are, however, but minor blemishes on a book which every first-year student of economics should have on his reading-list.

F. W. Paish.

Inventory Accounting and Policies. By J. Keith Butters, assisted by Powell Niland. Harvard Business School, Boston. 1950. xix + 330 pp. $3.75.

This is an interim report, in two senses. It is the first volume in a series that will cover the effects of taxes on business (other volumes are in progress on depreciation, management incentives, financial policy, and like topics); and its authors give little space to the relevant theory, their hope being to pursue such analysis further in later monographs. The book must therefore be viewed as work-in-progress, not finished goods. On that understanding, it wins high marks. But we may wonder whether the plan of attack is altogether sound. The segregation of topics into different volumes may suggest that the gulf between them is wider than is in fact the case. Perhaps, too, theory should have been treated as an essential ingredient right from the raw material stage, rather than as a final lacquer to be superimposed in the finishing department.

In one respect, the authors do themselves injustice in disclaiming any attempt at analysis. Their discussion on the economic significance of different methods of stock valuation is most useful, and the caution with which they phrase their conclusions should not have called for any apology. The view that "Fifo" (first-in-first-out) may help to steepen the swings of the trade cycle, by making the rise and fall of profit figures too violent, has already been aired by several writers. But much less attention is normally given to the counter-argument —that inflated accounting profits mean higher taxes, and higher taxes drain off cash and so check expansion. In *Inventory Accounting* both the "psychological" and the opposing "tax and cash" effects are explained and examined with care. The authors' tentative conclusion is that the "tax and cash" effect is not so potent as might be supposed, and that "an appropriate counter-cyclical fiscal policy can be better obtained by other means than relying on [the normal accounting] concept of income which exaggerates the extremes of business and investor expectations and causes profits data subject to easy misinterpretation to be reported to the public".

Apart from this chapter on the trade cycle, the book is mainly factual. It portrays the "Ifo" family from many angles. "Lifo" (last-in-first-out) emerges as the authors' favourite. And indeed the story of her quick rise to a place of honour is not without dramatic effect. In 1939, "Lifo" was esteemed only by cranks; now even the U.S. Treasury has been forced to recognise her, and to compute the special price indices (e.g., for each of the main groups of stock found in departmental stores) that she demands. Messrs. Butters & Niland have studied the extent of, and reasons for, this change—by statistical work, and by trying (e.g., in a painstaking series of interviews with executives) to fathom the motives behind business decisions. Their figures should provide British reformers with useful ammunition. Given an annual rise of 10 per cent. in relevant prices, a change from cost-or-market to "Lifo" is estimated (Table 5) to lower the profits of U.S. manufacturers by 2.9 per cent. of combined capital and reserves (i.e., by as much as the whole dividend in many cases); for retailers and for wholesalers, the corresponding figures rise to 4.5 per cent. and 5.2 per cent.

When the authors at some future date round off their task by amplifying theory, to what topics should they give attention?

First, a more precise analysis of "Lifo" is needed. The phrase "inventory profit" has done much harm by suggesting that stocks at the beginning and end of the business year are responsible for the overstatement of profit during inflations, and therefore that tinkering with their values (by e.g., using "Lifo") will correct all error. But error might appear even if stocks were of negligible size at the start and end of the business year. For is not the cause of error the holding of stocks (or, for that matter, of any kind of circulating or wasting assets) *during* the year? An algebraic approach is perhaps the best way to show this point. If there is a time lag between payment for input and receipt from output, inflation will make the profit—as measured in ordinary accounts—look too big. But in what sense do we use phrases like "too big", and "error"? We mean that, if the owner withdraws all profit, the cash left from each sale will be too small to pay for a repeat dose of input at the higher price level. If real capital, as distinct from money capital, is to be kept intact, replacement cost provisions must be deducted from sales revenue throughout the year. "Lifo" gives a clumsy and furtive short cut to the same goal; by grossly understating closing stocks, it succeeds (provided closing stocks are representative of stocks during the year) in reducing profit as much as if replacement cost provisions had been charged among the costs of each sale.

This leads to a second problem—one of social welfare. When inflation and the time lag error in accounts are coupled with high rates of tax, firms must in effect pay an annual capital levy on most of their non-money assets. The paths of escape from inflation have thus been made few and narrow. If any asset is used up in business, its inflated value is so severely taxed that its owner is left with little more than his original money capital; despite his extra trouble and risks, he is scarcely better off in the end than the *rentier* who did not try to escape. Thus business has borne a bigger share of the costs of war and social reforms than it expected. Its new-found concern for accounting theory springs largely from a hope of shifting tax to recipients of other kinds of income. From the standpoint of justice, the problems at stake are difficult. Moreover, even if we feel that severe taxes on profits are just, we may nevertheless think that they lead to such erosion of resources as to threaten the welfare of both business and the private citizen. These are issues that cannot perhaps be settled in a treatise on accounting, but should at least be stated.

Third, there is the question of whether, if we want reform, an adequate price index can be found. The statistical snags are forbidding. The present trend is to look for indices that will maintain the physical capital of any given firm; so each kind of firm—and sometimes each department—is given its own index. Would not one index (perhaps for cost-of-living on a somewhat bourgeois scale) be better? Its effect would be to define "maintenance of capital" in terms of an investor's standards of consumption; any extra appreciation in the stocks of a given firm would not be shielded from the tax-gatherer. A system of many indices would appear to be, to say the least of it, inequitable as between industries. If the stocks of industry A happen to appreciate faster than those of its rivals, why should the gain be held inviolate, subject to neither dividend nor tax? In coaxing such a handsome concession out of the Treasury, U.S. department stores have indeed won for themselves an astonishingly privileged status.

W. T. Baxter.

Economic Fluctuations in the United States, 1921–1941. By Lawrence R. Klein. (Cowles Commission Monograph No. 11.) John Wiley, New York. Chapman & Hall, London. 1950. 174 + xi pp. $4. 32s.

The nature and significance of the *econometric method* are fully grasped even now by probably only a minority of economists. It is, in one aspect, like a powerful chemical re-agent which precipitates and makes visible, as it were, all the hidden ambiguities and obscurities of a theory, leaving a clear and precise statement in terms of operational concepts, a theory testable, at least in principle, by reference to the facts. Beyond this it seeks to quantify the theories, showing which relationships really matter and which are negligible. In these two ways together it creates a set of models, each exhibiting with less or greater complexity and hence with less or greater exactness the dynamic *structure* of an economic system, the web of inter-connections between dated values of the variables from which the behaviour of the system through time, given an initial state, can be deduced. The practitioners of this art face an immense tangle of peculiar and intricate difficulties, many of them arising from the insufficiency of the statistical data, others from the inherent intractability of problems of ' identification ', some from the ultimate mystery of human nature itself.

In this superb book Dr. Klein shows us the econometric method in actual application. First the essential character of the method, its aims and principles as seen by the mathematician, are explained with beautiful conciseness and lucidity. To specify the state of the economic system at some instant we can measure at that instant, or over a related short interval, each of a sufficiently comprehensive list of what we judge to be its most significant and interesting features : output, employment, prices, profits, and so on. When this has been done for a series of instants at suitable intervals we seek to make sense of the resulting pattern by proposing and testing sets of hypothetical functional relationships, each such relationship connecting some one class of measurements (e.g., employment) and one or more other classes of measurements (e.g., investment without lag or lagged by one or several time-intervals). The variables (measurables) are divided, partly at the judgment of the investigator, into two sets : those whose values are *given*, either because the quantity in question is determined from without the economic system as such, by legislation, natural circumstances such as the weather, and so on, or because the individual instances of measurement refer to dates in the past ; and those whose values are determined by their having to compose a solution of the system of simultaneous equations which together describe the postulated dynamic structure of the economy. Variables whose values are given from without are called exogenous, those whose values are determined by simultaneous solution of the system are called endogenous. The description of the dynamic structure then consists in a set of simultaneous equations equal in number to the *non-lagged* endogenous variables, and involving as data some values of the exogenous and of the lagged endogenous variables. Having postulated this system with the aid of the economic theorist, the econometrician's task is to estimate the parameters of this system of structural equations and compare the resulting computed values of the endogenous variables with their observed values.

This book does so many things at once, and in each of them attains so high an excellence in so quiet and unassertive a fashion, that it is hard to know what is most valuable or most likely to be overlooked by a hasty reader. The ordinary economist may be shocked to see how threadbare one or two of his fashionable garments look when subjected to this searching empirical light, and though this does not, of course, in the least abate the value of his constructions as independent, self-consistent deductive systems, it is none the less salutary for him to be reminded that the only validity he can himself give them, introspection apart, is that of internal coherence. In return, a careful reading of the book will enable him, such is Dr. Klein's scrupulous objectivity, to point out many limitations to which the econometric method is still, and perhaps for ever, subject.

One fundamental and perhaps logically unsolvable problem which confronts the econometrician is that of *identifying* statistically estimated co-efficients with basic parameters of the system. If, in a simple Keynesian model, we write both consumption and investment as linear functions of income only, completing the system with an equation showing income equal to the sum of consumption and investment, then in this third equation we can substitute, for the explicit term 'consumption', the expression for consumption as a function of income. Thus we get an equation which can be manipulated to show investment as a function of income only. We then have *two distinct* equations showing investment as a linear function of income only: how are we to know which set of parameters we have obtained from our statistics? The problem of identification is only one amongst many fundamental problems whose nature Dr. Klein makes perfectly accessible to the non-specialist.

This book is the record of one phase of an arduous and profoundly important intellectual adventure: the attempt to make economics scientific. Its author is one of the most distinguished of that very small group of investigators who combine the indispensable qualifications for the task: high qualifications as mathematician, statistician, and theoretical economist. There can be few economists whose thinking will not be clarified and stimulated by this deeply impressive book.

G. L. S. SHACKLE.

Political Economy in Australia: Historical Studies. By J. A. La Nauze. Melbourne University Press. 1949. 135 pp. 9s. 6d.

This book consists of three skilful, scholarly and significant miniatures, set against an Australian background with which each of the three subjects (Jevons, W. E. Hearn, and David Syme) had a different relation. Jevons spent his nineteenth to his twenty-fourth years in Australia (1854–59), publishing various articles, though nothing of subsequent importance for its own sake. But in this time in

Australia the seeds of all his main great contributions to theoretical economics were sown, and were, so to speak, almost through the ground by the time he left. Hearn, on the other hand, went out from the Chair of Greek at Galway in 1855, as one of the first four professors at Melbourne University, and eight years later produced his notable textbook, *Plutology*, which, however, shows no trace of its Australian birthplace and which might just as well have been written in Ireland. But David Syme, who arrived in the Victorian goldfields a year or two before Hearn, and whose *Outlines of an Industrial Science* (1876) has its place in the historical movement of the 1870s, was clearly influenced in his historical, socialistic, and protectionist criticism of classical liberal doctrines by the contemporary problems of the colonial economy of Victoria.

In summarising and carefully listing the Australian writings of the youthful Jevons (some of which are only available in manuscript in Australia and all of which are highly, though not completely, inaccessible in this country), Professor La Nauze has made a very valuable addition to our knowledge of one of the most fascinating and profoundly admirable passages of intellectual biography in the history of economic thought. His essay constitutes an important supplement to the Australian section of Jevons' Journal and Letters.

Jevons' Australian writings on social and economic subjects consist partly of his sketches for a social survey of Sydney, and partly of his criticisms of railway and land policy in New South Wales. Jevons' interest in the study of society had first been awakened when he was a schoolboy in London. As Marshall was to do in industrial cities some fifteen years later, Jevons used to go for long walks through the poorest parts of the Dickensian London of 1851 and the following years, studying the living conditions and " looking at the faces of the poorest people " (Marshall). (Do any economists begin in this way to-day ? A more probable contemporary starting-point might be to walk through the sidestreets off Whitehall looking at the faces of the civil servants.)

Jevons wrote (*æt.* 17) that the book he wanted most to obtain was that extraordinary pioneer social survey Mayhew's *London Labour and the London Poor*, " the only book I know of to learn a little about the real condition of the poor in London ". He followed up these interests in Sydney, and among his earliest projects was " Notes and Researches on Social Statistics or the Science of Towns, especially as regards London and Sydney ". He completed a number of chapters on Sydney which Professor La Nauze lists and quotes from most interestingly, including one—apparently not quite as interesting as its title might suggest—on ' Sydney by Night '.

Amid his many original ideas and interests, and in the comparatively very short time which was granted him to develop them, Jevons never followed up his ' Science of Towns ', the idea of which seems to have been entirely his own, stimulated perhaps by Mayhew.

Jevons' interest in theoretical economics seems to date from 1857, the middle of his Australian sojourn, when he read Lardner's *Railway Economy* and wrote his first article on an economic subject. His approach was by way of the practical issues of railway-rate fixing. The pricing and other problems of public utilities, and of railways in particular, were growing very rapidly in importance in the middle decades of the nineteenth century, and the cost of production theory of competitive value, based on the assumption of constant costs, had little to contribute to their elucidation. The case of constant costs and a competitive market provided no scope for the vital distinction between 'marginal' and 'average'. The new public monopolies, often with their heavy fixed and low variable costs, brought a challenge to fresh thinking on pricing problems, both from the monopoly and the consumer point of view, which was clearly at work on several of the main pioneers of marginal analysis: for example, on Dupuit, on the American engineer Charles Ellet (whom Professor Viner has ranked with Cournot and Dupuit), and, through Lardner and the New South Wales railways, on Jevons. It was this line of thought, along with Bentham's ideas on utility and diminishing utility, which led Jevons to his marginal theory of value. His two opening articles in *Empire* do not contain any highly significant passages, but there are clear suggestions that the train of thought had started, and Jevons first announced his new theory to his brother within a few months of his return to England in 1859.

David Symes' work, *Outlines of an Industrial Science*, seems to have had little influence on the historical movement in England, though it was noted approvingly by Schmoller. He is better known as " the father of Protection in Australia ", by reason of his journalist campaigns in Melbourne. Professor La Nauze notes that his analysis of method was developed *after* his views on economic policy, and that he was seeking a systematic justification for his case for colonial protection to which he had been led " by common sense ".

W. E. Hearn's *Plutology* has a more definite niche in the history of thought, though not deserving so important a place as has sometimes been suggested for it. Professor La Nauze effectively disproves the notion (as can mainly be done by means of a few simple dates), that Jevons could have owed anything important to Hearn. Hearn's influence on Marshall may well have been more considerable, both in respect of his strenuous but optimistic biological conception of economic competition, and in his treatment " of wants and their satisfaction ". Hearn had read widely and perceived something of the importance of various valuable writings then neglected by the more orthodox writers but later to be recognised as of pioneer importance, notably those of Longfield and John Rae. Professor La Nauze proves that Hearn did not acknowledge by any means as fully as he might have done his indebtedness to Rae for his ideas on capital and invention.

Professor La Nauze regards his three valuable studies as prolegomena preparatory to a history of 'Australian economics' which he holds to have begun in the late 1920s. It was then that Australian economists began closely to examine and influence the practical policy problems of the Australian economy, especially after the onset of the great slump in 1929. Certainly a study of economists' writings in relation to this fateful period in world economic history seems a highly promising subject, the Australian chapters on which it is very much to be hoped that Professor La Nauze will one (not too distant) day be giving us.

T. W. HUTCHISON.

Planning in Practice. By Ely Devons. Cambridge University Press. 1950. viii + 231 pp. 15s.

In this book Professor Devons, who was in charge of the Statistics Branch of the Directorate-General of Programmes, Planning and Statistics in the Ministry of Aircraft Production from 1941 to 1943, and of the whole directorate from 1943 to 1945, gives the world the fruits of his experiences as a planner. It is difficult for one who shared his experiences for most of this time to judge the impact which this book will make upon those who have no knowledge of these or related conditions; for his carefully impersonal analysis of the problems and difficulties of quantitive planning inevitably recalls to mind the whole intensely personal background—the hasty conferences, the taking of decisions involving millions of pounds, often on the basis of imperfectly remembered figures, and calculations hastily scribbled on the backs of envelopes; the fragments of gossip, on the telephone or in casual meetings in corridors, which often gave the first hint of information vital to those engaged in drawing up programmes; the long delays while policy was planned, followed by proportionately frantic efforts to get it implemented before it changed. Yet even those strangest to the subject must surely be impressed by Professor Devons' uncanny capacity to hold together in his mind the complicated threads of dozens of partially related variables, even though they shift and change like a jig-saw puzzle made of moonshine, so that, even if by some miracle perfect co-ordination could be achieved, it would not endure for more than half an hour.

Professor Devons takes us a methodical tour round the problems of his directorate. He explains the impossibility of using money and the price mechanism for controlling production when the demand switches violently back and forth from month to month, when production this year may be worth ten times production next, and when the best may mean victory and the slightly second-best defeat; but he also shows the hopeless inadequacy of any other unit of account, whether structure-weight, or man-hours, or what you will, for aggregating output when the usefulness of the product bears little relationship either to quantity or to costs of production. He tells us of the power of those who compile and present statistics, and also of the often insuperable difficulties of making these same statistics either accurate or up-to-date. He makes plain for us the difficulty of correlating programmes, for aircraft and components, of universal but not uniform inaccuracy, and of the problem of meeting a demand which often cannot be foreseen more than three months ahead out of a supply in which it may take two years or more to make a really major adjustment. And by way of appendix he explains in a detail which leaves one amazed at his memory the incredibly complicated series of problems which had to be borne in mind in June, 1944, but neither a month earlier nor a month later, by anyone who was responsible for co-ordinating the supply of air-frames, engines, power-plants, radiators, propellers, constant speed units and turrets.

To anyone who may be tempted to think that Professor Devons' picture is exaggerated, I would give my assurance that it is, if anything, underdrawn. He brings order to much of what looked like chaos at the time, and where he cannot reduce confusion to reason, he at least shows us the reason for the confusion. If it is true that in the last four years of the war we in M.A.P. made fewer mistakes on the whole than our opposite numbers on the other side, it was, I believe, in no small degree due to the work in those years of Professor Devons. If, as I hope, this book is now made compulsory reading for all those now planning our re-armament programme, his work may again help to prevent mistakes; and in war, cold or hot, it is the side which makes the fewest mistakes which wins.

F. W. Paish.

Balance Sheets and the Lending Banker. By J. H. Clemens. Europa Publications Ltd. 1949. 197 pp. 12s. 6d.

The banker has one great advantage over other lenders: he keeps a replica of the borrower's cash account in his own books. In the long run the success or failure of every business is reflected in the movements in its cash account. And in the short run if the account is watched against a background of knowledge of the nature of the business and of the current managerial strategy it can give early warning of approaching danger. The signal may be given by such signs as a tendency for round sum payments to be made to suppliers and for paper to be discounted which would formerly have been held to maturity, bumping of the balance against the overdraft limit, a break in the rythmical ebb and flow of the balance. Mr. Clemens shows how the banker can make use of his advantageous position, but warns us of the limitations in the study both of the current account itself and of accounting documents furnished by the customer.

For despite his advantage the lending banker suffers from the dilemma which faces all lenders and all investors who do not manage the business they own. If he is to safeguard his loan to the fullest extent not only must he be furnished with the most detailed up-to-the-minute accounting information about every relevant part of the business (a costly affair where the small business is concerned), but he must be provided with budgets and estimates for the future (which he can check against achievements) and be informed of all the expectations, estimates and hopes of the borrower in order that he, the lender, may judge whether they are justified and his loan is safe.

Obviously the lender in practice must stop at some point short of this extreme and be satisfied with less information. Indeed if he did not he would cease to be a banker *tout simple* and become an industrialist or trader. Mr. Clemens provides the banking student, and for that matter the practising banker, with much good advice on the interpretation, from the banker's point of view, of the kind of accounting information likely to be available to them in practice. He leaves his readers in no doubt that these documents are valuable aids—but no more—in the appraisal of lending prospects and in the after-care of loans made. His motto is " Know your man ".

It would be wrong to suggest the book is without faults. It has some of the defects inevitable in a relatively short work. It is true that it is intended as a practical guide and does not pretend to be an analytical presentation. In some places, however, it is not as clear as might be desired and there is an occasional tendency to introduce what seems to be inconsequential matter. It cannot be said that the treatment of the problem of depreciation is adequate, though in implying that the depreciation provision is a matter of taste Mr. Clemens may be a good deal nearer the mark than many accountants would like to admit. The examples of Chapter IV showing the successive balance sheets of a business as it grows, and the consequent drain on working capital, are very useful, but the reviewer found the explanatory notes insufficient to enable him to grasp the scheme quickly. These examples would gain by the addition of a working-capital schedule. On page 116 the text as it stands suggests that the I.C.F.C. and F.C.I. were set up soon after the publication of the Macmillan Report. Mr. Clemens' emphasis on the importance of watching the incidence of overhead expenses has led him on page 30 into the following over-simplification ". . . it is the circulating assets which earn profits, and which alone can produce an adequate return on the capital sunk in fixed assets, and a sufficient surplus for amortization ". The argument on this and the following page does not make it sufficiently clear that it may be good business to increase overheads if thereby gross profits are increased more.

Teething troubles are inevitable. Mr. Clemens will no doubt overcome them in his next edition of this useful little book.

H. C. EDEY.

SHORTER NOTICES

The Co-operative Movement in India. By Eleanor M. Hough. 2nd edition, revised and enlarged. Geoffrey Cumberlege, Oxford University Press. 1950. 25s.

The first edition of Miss Hough's admirable study of cooperation in India became the standard work on the subject. The new edition includes changes in and additions to most of the chapters, which clarify the background, give a critical evaluation of the changes in Governmental policy towards the movement and in the organisation and methods of the movement, and greatly strengthen the analysis of administrative problems and weaknesses. In particular we may note the account given of the controversy over the encouragement given to mortgage security (tending to a weakening of cooperative principles); the devotion of a special section to multi-purpose societies, which have grown greatly in favour; and the valuable critique of the administrative aspect. Finally new chapters are devoted to the suggestion that direct State aid should replace cooperation, the conditions of success in the future, and the potential contribution of the movement. The most excellent short bibliography and extensive list of references enable the reader to check the evidence and consult the ever increasing volume oι material on the subject with the least possible trouble. Miss Hough has written a most readable, scholarly and authoritative book.

London Travel Survey, 1949. London Transport Executive. 1950. 47 pp. 7s. 6d.

This book describes the first results of an investigation into the travel habits of those who live within approximately fifteen miles of Charing Cross, carried out in the early months of 1949 by the London Transport Executive in co-operation with Research Services Ltd. The main purpose of the survey was to establish the extent to which Londoners make use of public transport particularly for the journey to work, and to discover also the other purposes for which they travel. In a Foreword the Chairman of the London Executive says he is confident that the survey will also make an important contribution to the future planning of London's transport services. The book does not claim to give the full results of the survey, further detailed study being necessary before these become available.

In Chapter 1 details are given of the average size of the household and the average number of workers it contains. Figures are also given of the distance from the home to the nearest public transport services. Thus in the suburban area the average household is 4.2 minutes distant from the nearest form of public service, compared with 3.3 minutes in the County of London. In all areas, the form of public transport to which much the highest percentage of house-holders is nearest, is the 'bus. Chapter 2 deals with the purposes for which regular journeys are made both by public and other means of transport. Chapter 3 analyses the extent to which different classes of workers make use of public transport in their journey to work. It appears from Table 9 that 58 per cent. go by public transport, 17 per cent. walk, 14 per cent. cycle, 4 per cent. go by car, and 2 per cent. by other means. Other chapters are concerned with the time and money spent in regular travel by public transport services. An appendix explains the sampling methods employed.

Letters of a West African Trader. Council for the Preservation of Business Archives. 1950. ii + 40 pages. 8s. 6d.

From among the many (but still far too few) papers in the hands of the Council for the Preservation of Business Archives, the letter book of a merchant trading to West Africa has been selected as its first publication. As Professor Ashton says in his Introduction, it makes " a colourful and, in parts, a lurid story ". It illustrates the channels of the three-cornered trade to the West Indies, the variety of the goods traded, the relations between the parties, and the values of the goods (brandy at half-a-crown a gallon perhaps explains why the mate, reported as loving the bottle too well, was judged unsuitable to replace an embezzling captain).

We hope that the Council will be able to publish many more such documents. No library with an Economic History section can afford to be without them.

Wage Determination under Trade Unions. By J. T. Dunlop. With a new preface by the author. Basil Blackwell, Oxford. 1950. xi + 230 pp. 20s.

It is a boon that this work has now been made available in a British edition. When it first appeared, its author described it as " a tentative reconnaissance of some of the more prominent and obvious features of the pricing terrain " in collective bargaining. His aim was to apply economic analysis to some of the discards of general pricing theory, such as frictions and bargaining power, and also to construct a framework of analysis which would include the factors in wage determination other than those with which pricing theory works. He stimulated fresh thought about collective bargaining, and his work stands among the headwaters of a new stream of economic inquiry. At the outset he asserted " that modes of behaviour that are broader than economic theory contribute materially to the understanding of wage determination " ; but some later writers having gone beyond this, to maintain that wages are actually determined much more by political than by economic forces, he has written a preface for the present edition, to uphold his belief that it is the economic forces that predominate.

Guides to Official Sources: No. 1, Labour Statistics. Revised August, 1950. H.M.S.O. 1950. 1s. 3d.

The Interdepartmental Committee on Social and Economic Research did a great service to all students of labour problems when it published its guide to labour statistics in 1948. This guide has now been revised and enlarged. The principal changes arise from the new manpower series yielded since July 1948 by the National Insurance Act and the National Insurance (Industrial Injuries) Act, and from the adoption of the Standard Industrial Classification; but the new guide also provides a revised and in some particulars enlarged treatment of the earlier sources, notably the old employment series and the old cost of living indexes. It is indispensable to all who use labour statistics.

Readings in Economic Analysis: Volume I (General Theory) and Volume II (Prices and Production). Edited by Richard V. Clemence. Addison-Wesley Press Inc., Cambridge, Mass. 1950. ix + 283 pp. and xi + 259 pp. $2.50 each vol.

These volumes contain a selection of important articles primarily on value theory. They have been skilfully edited by Dr. Clemence who modestly remarks that his own contribution has been " to keep my comments out of it ". The articles are reproduced photographically, exactly as they first appeared in print. The principle of selection in Volume I is a little difficult to understand, but readers will have no complaints about Volume II. In the latter, the inclusion of Professor Viner's inaccessible " Cost Curves and Supply Curves " is most welcome, more so because its author has added a supplement dated January, 1950. In the same volume there is made available the complete Lester—Machlup controversy over marginalism. Further selections are promised and if they attain the high standard of Volume II they will be of immense value, particularly to those teachers and students who do not have ready access to the complete range of periodicals which the serious economist is obliged to read.

The Social Crisis of our Time. By Wilhelm Röpke. William Hodge and Co. Ltd. London. English Edition. 1950. 260 pp. 15s.

This is the translation from the German of a work originally published in Switzerland in 1941 under the title *Die Gesellschaftskrisis der Gegenwart* and which was reviewed in this journal in 1944.

Part I (pp. 1–150) is an excursion into sociological diagnostics at which the author excels in his own erudite fashion. The fact that the author in his discussion of remedies for the instability of capitalism claims kinship with Lerner and Meade should be of interest to those who are inclined to associate Professor Röpke with extreme Continental Liberalism. However, readers may find it a little difficult to trace the family connection in his suggestions for international monetary reform.

Social Insurance in Britain. By Charles E. Clarke. Cambridge University Press. 1950. x + 136 pp. 13s. 6d.

This book is primarily a text for actuarial students although it claims to deal with the financial aspects of National Insurance as well. Actuarial estimates of income and expenditure, while an essential part of the assessment of financial commitments over future years, are based on assumptions regarding trends in mortality, morbidity, invalidity, etc., but also trends in unemployment and the rate of interest which are difficult to assess. Mr. Clarke's book gives the mechanics of computation, once the assumptions are made, but goes no further. Save for some small adjustments, he is content to accept the Government Actuary's figures which are already in need of revision. The summary of financial provisions of the National Insurance Act, 1946, in the Appendices is admirable.

The Cost and Financing of Social Security. By Lewis Meriam, Karl T. Schlotterbeck and Mildred Mahoney. Brookings Institution, Washington, D.C. 1950. ix + 193 pp. $3.00.

This volume combines a summary of existing social security provisions in the United States with an exhaustive analysis of the extensive changes in the rates of contribution, coverage and benefits recently proposed and adopted by Congress in respect of unemployment and old-age insurance. Some statistical data on the incidence of poverty in and an enterprising chapter on private pensions and retirement schemes provide additional interest. The relatively high standard of discussion of the economic problems of social security in American economic literature is maintained. The contrast drawn between social and private insurance, which has been used in previous works, clears up a number of misconceptions and also aids the understanding of the complicated relationship between social insurance and general fiscal structure.

La Démocratie Industrielle et les Comités D'Entreprise en Suède. By Charles Leger. Cahiers de la Fondation Nationale des Sciences Politiques. Paris. 1950. 227 pp. 350 fr.

Although Sweden has had a highly developed system of collective bargaining—that has aroused envy in other countries—for many years, it was not until 1946 that agreement was reached between the employers and trade unions to permit the establishment of a system of joint consultative committees to discuss matters other than wages and working conditions. M. Leger gives a useful account of the growth of ideas that led to this agreement and the way in which it has been put into operation since 1946. By December, 1949, 2,650 enterprises had set up these committees, covering more than 50 per cent. of the organised workers in Sweden, their main functions being to discuss problems of production, safety, general welfare and apprenticeship.

Freedom of Association and Conditions of Work in Venezuela. I.L.O., Geneva. 1950. 185 pp. 6s.

Venezuela, in common with most of the Latin American countries, has a turbulent history of revolution and counter-revolution. Under these conditions the organisation of labour has been markedly influenced by the nature of the regime in power. Following severe criticism of its policy towards the trade union movement in Venezuela, the most recently successful revolutionary government of that country invited the I.L.O. to send a Commission to report on the situation there. In the traditions of the I.L.O. the report of the Commission gives an objective account of the political and social conditions existing, the attitude of the Military Junta, and the state of the trade union movement.

[The following is a corrected version of a Shorter Notice that appeared in our February issue. The Editorial Board apologises to Messrs. George Allen & Unwin Ltd., for the erroneous notice.]

Readings in Business Cycle Theory. American Economic Association Collection. Allen & Unwin Ltd. 1950. xvi + 494 pp., 25s.

Readings in the Theory of Income Distribution. American Economic Association Collection. Allen & Unwin Ltd. 1950. xvi + 718 pp. 30s.

The American Economic Association's collection of reprints, published in the U.S.A. by Blakiston's, are well known in British universities, but they have hitherto been difficult to obtain and very costly. The volumes now available are replicas of the Blakiston volumes, edited by a group under the chairmanship of Professor Haberler, and by Professors Fellner and Haley, respectively. They include most of the important articles published in English in the 1930s and a few earlier and later ones. Messrs. Allen & Unwin Ltd. promise a reprint also (at 30s.) of the collection on International Trade. Their venture will be welcomed by all teachers of economics.

Books Received

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Physiocracy and the Early Theories of Under-Consumption

By Ronald L. Meek

The economists of the school of Adam Smith, when confronted with the unorthodox doctrines concerning the relationship between consumption and production which began to appear as the eighteenth century ended, immediately sensed their Physiocratic quality. Say, for example, in the lengthy section of his *Traité* devoted to consumption, said this about them:

> *Beaucoup de gens voyant, en gros, que la production égale toujours la consommation (car il faut bien que ce qui se consomme ait été produit) se sont imaginé qu'encourager la consommation, c'etait favoriser la production. Les* Économistes *se sont emparés de cette idée et en ont fait un des principes fondamentaux de leur doctrine.* La consommation est la mesure de la reproduction, *disaient-ils*; *c'est-à-dire*: plus il se consomme, plus il se produit. *Et, comme la production enrichit, on en a conclu qu'un état s'enrichissait par ses consommations, que l'épargne était directement contraire à la prospérité publique, et que le plus utile citoyen, était celui qui dépensait le plus.*[1]

And James Mill, in his reply to Spence, went even further, attributing to the Physiocrats something like a developed under-consumptionist theory of crisis:

> The Economistes and their disciples express great apprehensions lest capital should increase too fast, lest the production of commodities should be too rapid. There is only, say they, a market for a given quantity of commodities, and if you increase the supply beyond that quantity you will be unable to dispose of the surplus.[2]

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[1] Say, *Traité d'Économie Politique* (1st edn., 1803), Vol. II, pp. 358–9. Say refers his readers to Mercier de la Rivière, *Ordre Essentiel des Sociétés Politiques*, Vol. II, p. 138. Cf. *Traité*, Vol. II, p. 366.

[2] James Mill, *Commerce Defended* (2nd edn., 1808), p. 80.

To what extent were such statements concerning the affiliations of the new theories correct ? It is obvious enough that some connection existed, if only because of the fact that most of the early under-consumptionists, even when they were not out-and-out Physiocrats, had strong leanings in that direction. But what was the exact nature and significance of the relationship ? The present article is an attempt to answer these questions. It begins with a brief account of the doctrines relating to consumption held by the French Physiocrats ; it then passes to an examination of the theories of under-consumption put forward by Spence, Sismondi, Malthus, Chalmers and others ; and it concludes with some comments on the place of the early under-consumptionists in the history of economic thought.

I

Say was hardly justified in ascribing to the French Physiocrats without qualification the idea that "*encourager la consommation, c'était favoriser la production*". In so far as they did accept this doctrine, they confined its application to a sphere much more limited than Say's comments would suggest. And Mill was clearly quite wrong in asserting that they expressed great apprehensions "lest capital should increase too fast" ; when they did express any apprehensions concerning the accumulation of capital these were almost always to the effect that capital was not increasing fast enough. As I have tried to show elsewhere, the Physiocrats were primarily interested in the problem of the maximisation of the rate of increase in national wealth. The prosperity of the country, they believed, depended to a large extent upon the size of the "disposable revenue", or surplus over paid-out costs of production, which was yielded in agriculture, and upon the proportion of this net revenue which was annually converted into capital. The Physiocratic theory of consumption was directly related to this fundamental view of the economic problem. In essence, it amounted to a set of administrative rules and moral precepts designed, first, to assist in increasing the monetary value of the produce of agriculture, and second, to bring about a proper balance between productive and unproductive expenditure out of the *produit net*. Under the first heading the Physiocrats considered the effect of consumption on the *bon prix* of agricultural produce, and under the second the so-called *théorie du luxe*.[1]

The *produit net*, which was yielded only in agriculture, was the mainspring of the country's economic life and the key to its increasing prosperity. But the value of the *produit net* varied not only according to physical productivity but also according to the market price of agricultural produce. The higher the price of corn, other things being equal, the greater the *produit net*. " *Telle est la valeur vénale, tel est le revenu* :", it is stated in one of the *Maximes Générales*, " *Abondance et non-valeur n'est pas richesse. Disette et cherté est misère. Abondance et cherté est opulence* ".[2] All possible measures should therefore be taken to raise the price of agricultural produce, which was considered to be (and in fact was) far too low, and to extend the market for it. The main measure which was called for was of course freedom of trade, both internal and external, in agricultural produce. But the Physiocrats also laid considerable emphasis on the importance of increasing the internal consumption of agricultural produce, and occasionally described the beneficial effects of an extended consumption in terms so extravagant as almost to warrant Say's criticism.[3]

The measures proposed for increasing the internal consumption of agricultural produce were many and varied. It was suggested, for example, that those manufactures which employed home-grown raw materials should be encouraged ; that the lower classes should be made as well off as possible so that they would be able to buy more produce and pay a higher price for it ; and that disposable revenue should never be accumulated in the form of monetary hoards. And the Physiocrats had plausible answers ready for those who objected, on the one hand, that low prices rather than high prices were beneficial to the common people, and on the other hand, that with higher prices the purchaser lost as much as the vendor gained so that no net profit was yielded.

[1] It is convenient to consider the two theories separately, but they were of course intimately related. The whole rationale of the distinction between *faste de décoration* and *faste de consommation* lay in the effect which the latter type of expenditure was conceived to have on the price of agricultural produce and thus on the value of the *produit net*. The most convenient collections of the texts are to be found in Weulersse, *Le Mouvement Physiocratique en France*, Vol. I, pp. 484–95, and René Gonnard, *Histoire des Doctrines Économiques* (5th edn.), pp. 54–8. A useful summary is also to be found in the introduction by A. Dubois to a 1912 reprint of Baudeau's *Principes de la Science Morale et Politique sur le Luxe et les Loix Somptuaires* (1767).

[2] *Œuvres de Quesnay* (ed. Oncken), p. 335.

[3] Cf. Gonnard, *op. cit.*, p. 54.

To the first group of critics they replied in the words of the nineteenth *Maxime Générale* that—

> *On ne croie pas que le bon marché des denrées est profitable au menu peuple ; car le bas prix des denrées fait baisser le salaire des gens du peuple, diminue leur aisance, leur procure moins de travail et d'occupations lucratives et anéantit le revenu de la nation.*[1]

And to the second group Quesnay suggested that the increase in the price of agricultural produce would induce a sort of Physiocratic multiplier effect throughout the economy :

> *Ceux qui n'envisagent pas, dans toute son étendue, la distribution des richesses d'un État, peuvent objecter que la cherté n'est avantageuse que pour les vendeurs, et qu'elle appauvrit ceux qui achètent . . . La cherté, selon ces idées, ne peut donc pas être, dans aucun cas, une augmentation de richesses dans l'État.*
>
> *Mais la cherté et l'abondance des productions de l'agriculture n'augmentent-elles pas les profits des cultivateurs, les revenus du roi, des propriétaires et des bénéficiaires qui jouissent des dîmes ? Ces richesses elles-mêmes n'augmentent-elles pas aussi les dépenses et les gains ? Le manouvrier, l'artisan, le manufacturier, etc., ne font-ils pas payer leur temps et leurs ouvrages à proportion de ce que leur coûte leur subsistance ? Plus il y a de revenus dans un État, plus le commerce, les manufactures, les arts, les métiers et les autres professions deviennent nécessaires et lucratifs.*[2]

To raise agricultural prices was one way of increasing the *produit net* and national prosperity. The same problem could also be tackled from another angle : rules could be laid down concerning the manner in which the *produit net* ought to be disposed of by those to whom it accrued in the first instance. The *produit net* was " disposable " only in the sense that it represented a clear surplus over production costs in a given period of working—the manner in which it was actually expended was far from being a matter of indifference to society. The Physiocrats were well aware of the fact that a large number of the landed proprietors of their day were spending their rents on the luxuries of the cities rather than on the improvement of their land, and

[1] *Œuvres de Quesnay*, p. 335.

[2] *Ibid.*, pp. 248–9.

much of their argument was directed towards bringing about a reversal of this state of affairs.[1]

The Physiocrats' *théorie du luxe* was an attempt to evaluate the various ways of spending the *produit net* according to the effect which they might be expected to have on the size of future *produits nets*. The concepts which they evolved were rather more complicated than those employed by Smith and his successors in their discussions on the productive and unproductive expenditure of revenue, since the Physiocrats had to take account of the fact that one type of seemingly unproductive expenditure—that on agricultural produce—might exert a stimulating effect on the economy per medium of the *bon prix* which it would help to bring about. In the earlier Physiocratic writings on this point there is a certain amount of vagueness and ambiguity, which was not entirely cleared up until Baudeau synthesised the theory in 1767 in the columns of the *Éphémérides*. His first job was to give an adequate definition of *luxe* :

> *Nous appellons Luxe, l'interversion de l'ordre naturel, essentiel, des dépenses nationales, qui augmente la masse des dépenses non productives, au préjudice de celles qui servent à la production, et en même-tems au préjudice de la production elle-même.*[2]

But whether any particular act of expenditure on consumption goods out of the *produit net* comes within the category *luxe* necessarily depends upon the state of agriculture at that time. If agriculture is flourishing, then it is sufficient if the proprietor does not actually reduce his annual *dépenses agricoles* by his expenditure on consumption. If, on the other hand, agriculture is "*dégradée*", or "*auroit été long-tems spoliée de ses avances*", then it is the duty of the proprietor to put aside a substantial portion of the *produit net* each year in order to increase the *dépenses agricoles* and render them more productive. In either case a certain portion of the *produit net* should be ear-marked annually for use as capital in the improvement of the land, and to the extent that the proprietor spends this portion on goods for his own personal consumption he is committing the crime of *luxe*.[3]

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[1] "*Les Riches et les richesses*", complained Baudeau, "*n'habitent plus nos hameaux ; ils ont fui loin de nos guêrets, qui ne peuvent jamais être fertilisés que par leur opulence*" (*op. cit.*, p. 20).

[2] Baudeau, *ibid.*, p. 14.

[3] Baudeau, *ibid.*, pp. 14, 19 and 31–2.

Luxe is defined with reference to the degree of capitalisation of agriculture, and not with reference to the nature or amount of goods consumed.

But not all expenditure on luxury goods constitutes *luxe.* It is necessary to make a clear distinction between *faste,* i.e. conspicuous consumption, and *luxe*: *luxe* is very often *faste*, but *faste* is not necessarily *luxe. Faste* is not *luxe* when it represents expenditure out of that part of the *produit net* which is morally as well as legally disposable. Conspicuous consumption, in other words, is not *luxe* when it does not detrimentally affect the capitalisation of agriculture. But some kinds of conspicuous consumption are to be preferred to others, and a further distinction has to be made between *faste de consommation* and *faste de décoration.* Generally speaking, the former is to be preferred to the latter. *Faste de consommation*—the conspicuous consumption of primary produce—is healthy in so far as it helps to increase the *bon prix. Faste de décoration*—the conspicuous consumption of manufactured products—is less healthy, since, although the expenditure ultimately finds its way back to the productive classes, it does so burdened with all sorts of commercial costs. A hierarchy of permissible expenditure out of the *produit net* was thus erected. The most admirable type of expenditure was, of course, capital investment in agriculture. Until a state of capital saturation in agriculture is reached, as much as possible of the *produit net* should be spent in improving the land. And when agriculture is *dégradée*, *faste de décoration* is little better than a theft from society. The next most patriotic type of expenditure is *faste de consommation*, which should be so directed as to return their wealth to the productive classes as quickly as possible, and as little as possible burdened with incidental expenses. Thirdly, there is *faste de décoration*, when this does not constitute *luxe.* Baudeau somewhat grudgingly permits this type of expenditure to the proprietor "*qui se contente de ne pas faire mal, et qui préfère au plaisir de faire le bien public, celui de satisfaire son inclination ou son caprice*".[1]

Now it is fairly clear that there was very little in this Physiocratic theory of consumption which could have been of any direct use to an under-consumptionist. Consider, for example, two of the major themes which we find in the work of the under-consumptionists of the early nineteenth century

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[1] Baudeau, *op. cit.*, p. 32.

—that increased investment somehow brings about a relative diminution of demand, and that a failure on the part of the proprietors to spend their surplus on manufactured goods will cause a hiatus in the circulation process. There is obviously little support to be found in French Physiocratic writings for either of these two propositions. The *théorie du luxe*, with its distinction between productive and unproductive expenditure out of revenue, was much more useful to Smith and Ricardo than it was to the under-consumptionists. And from the theory of the *bon prix* the under-consumptionists could garner little except a few rather vague aphorisms concerning the stimulating power of increased consumption —aphorisms which the English under-consumptionists could have found (and sometimes did find) much nearer home. The clear correlation between Physiocratic concepts and theories of under-consumption in the early nineteenth century, therefore, remains as a puzzle which we must try to solve.

II

Some modern commentators—Keynes, for example—have thought to detect in Mercantilist writings the beginnings of a long tradition of concern about the effect upon employment of " the insufficiency of the propensity to consume."[1] It is certainly true that most Mercantilist writers were well aware of the fact that changes in the pattern and intensity of demand might radically affect the disposition of the social labour force. Their works abound with statements of the " spending is good for trade " type.[2] But these were generally more discriminating than is sometimes suggested today. " Liberality in the rich " was praiseworthy only if it was a disciplined liberality. Just as the Physiocrats, believing that the source of wealth lay in agriculture, condemned any consumption which had a detrimental effect on the supply of capital to agriculture, so the Mercantilists, believing that the source of wealth lay in a favourable balance of trade, condemned any consumption which worsened the foreign trade position. Mun, for example, declared that the Commonwealth is no better than " an unthrift who spends beyond his means " when " through Pride and other Excesses they do consume more forraign wares in value than the wealth of the Kingdom can satisfie and pay by the exportation of our own commodities."[1] However, " the pomp of Buildings, Apparel, and the like " on the part of the rich is not to be condemned : " if it be done with curious and costly works upon our Materials, and by our own people, it will maintain the poor with the purse of the rich, which is the best distribution of the Common-wealth." But, Mun adds drily, " if any man say, that when the people want work, then the Fishing-trade would be a better employment, and far more profitable ; I subscribe willingly."[2] The employment of the people in useful arts and manufactures, it was generally agreed, was an essential ingredient of national strength, and demand was an important factor in stimulating employment. But employment was not wanted for its own sake, and demand should therefore be directed only into those channels where the production which it fostered would be conducive to the growth of national wealth and prosperity. The emphasis placed by the nineteenth century under-consumptionists on the salutary effects of consumption was entirely different from this both in purpose and in quality—which is hardly surprising, since they and the Mercantilists lived in two different economic worlds.

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[1] Keynes, *General Theory*, pp. 358 ff. " It is no new thing ", Keynes writes, " . . . to ascribe the evils of unemployment to . . . the insufficiency of the propensity to consume." But after the publication of Mandeville's *Fable*, Keynes asserts, the doctrine expressed in that work " did not reappear in respectable circles for another century, until in the later phase of Malthus the notion of the insufficiency of effective demand takes a definite place as a scientific explanation of unemployment ". Cf. D. H. MacGregor, *Economic Thought and Policy*, Chapter 4, *passim*.

[2] E.g. Berkeley asked " Whether the industry of the lower part of the people doth not much depend upon the expense of the upper " ? and Barbon praised " liberality in the rich." These and a number of similar statements are quoted in E. S. Furniss, *The Position of the Laborer in a System of Nationalism*, pp. 56–62. See also E. A. J. Johnson, *Predecessors of Adam Smith*, pp. 289–97.

The Mercantilist literature, however, contains not only positive injunctions in favour of spending, but also positive condemnations of " frugality ", " thrift ", " saving " and so on. So common are these that Heckscher is able to speak of the Mercantilists' " deep-rooted belief in . . . the evil of thrift ".[3] It cannot be too strongly emphasised, however, that in the majority of cases what was being condemned was simply *hoarding*, the withdrawal of money income from circulation. In one passage Mun speaks of a man taking a " Frugal course " and putting half his revenue " in his Chest ",[4] and this, I think, was the sort of operation which the Mercantilists usually had in mind when they spoke of the evils of "frugality" and "saving". The Physiocrats had the same idea when they urged that the rich should not indulge in "*des épargnes stériles qui retrancheraient de la circulation et de la distribution une portion de leurs revenus ou de leurs gains*".[1] Sterile savings—i.e. hoarding—were harmful because they disrupted the process of circulation and had a deleterious effect on employment and business activity. This belief has been accepted by all subsequent schools of economic thought, including not only the early under-consumptionists, but also their opponents—even those who held most rigorously to Say's Law.[2] The controversies between Spence and Mill and between Malthus and Ricardo were conducted throughout on the explicit assumption, not that hoarding was harmless, but that it was a pathological phenomenon whose existence could safely be ignored. Spence and Malthus, in other words, meant by "frugality" something quite different from what the Mercantilist writers meant by it.

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[1] *England's Treasure by Forraign Trade* (1933 reprint), p. 26.

[2] *Ibid.*, p. 60.

[3] *Mercantilism*, Vol. II, p. 208.

[4] *England's Treasure*, p. 5. Mun himself did not condemn this type of frugality, but surely both he and those who *did* condemn it (e.g. Mandeville) were talking about much the same phenomenon.

The Mercantilist emphasis on consumption had necessarily to give way before the Classical emphasis on accumulation, which was first systematised in Britain in the *Wealth of Nations*. The new attitude was not, of course, unheralded: French Physiocracy was, in the broadest sense, a theory of capital accumulation, and Smith no doubt learned much from Francis Hutcheson, whose account of profit and accumulation was somewhat similar to his[3] and who consistently castigated *The Fable of the Bees*. But Smith's greatest teacher was the society in which he lived. He possessed that peculiar faculty, given only to the very great, of being able to discern in the world about him those features which although not preponderant now are destined to become so as the result of a process of social development. Writing on the eve of the industrial revolution, Smith foresaw the vital role which capital accumulation was to play in Britain in the near future. And since capital can be accumulated only by means of parsimony—i.e. by saving out of disposable revenue—the prodigal begins to appear in Smith's pages as a public enemy and the parsimonious man as a public benefactor.

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[1] Quesnay, *Œuvres*, p. 335. Cf. *Maxime VII*, *ibid.*, p. 332.

[2] Cf. D. H. MacGregor, *op. cit.*, pp. 111 ff.

[3] *A System of Moral Philosophy* (1755 edn.), Vol. I, Chapter 7 (particularly pp. 328–9), and Vol. II, Chapter 13 (particularly pp. 71–3).

This does not mean, however, that Smith believed consumption to be unimportant. On the contrary, he insisted that " consumption is the sole end and purpose of all production ".[1] He was careful to contrast parsimony, not with consumption *per se*, but with " prodigality ". " Prodigality " was not just conspicuous consumption, but conspicuous consumption which encroached upon capital. It was not just *faste*, but *luxe*. At the end of his chapter on accumulation, too, he discusses in detail the case of those individuals " whose expense just equals their revenue "—i.e. those who are neither prodigals spending more than their revenue nor frugal people spending less. Smith does not suggest that they alter their ways and become frugal ; all he does is to argue that expenditure by them on durable commodities is likely to " contribute more to the growth of public opulence " than expenditure on things which are consumed immediately.[2] And, finally, Smith points out—no doubt addressing himself to those Mercantilists of his own day who still confused hoarding with accumulation—that :

> What is annually saved is as regularly consumed as what is annually spent, and nearly in the same time too ; but it is consumed by a different set of people. That portion of his revenue which a rich man annually spends is in most cases consumed by idle guests and menial servants, who leave nothing behind them in return for their consumption. That portion which he annually saves, as for the sake of the profit it is immediately employed as a capital, is consumed in the same manner, and nearly in the same time too, but by a different set of people, by labourers, manufacturers and artificers, who reproduce with a profit the value of their annual consumption.[3]

Nevertheless, it was Smith's emphasis on the social value of accumulation and the moral value of parsimony, rather than his remarks on consumption, which caught the imagination of the generation which followed him. That generation grew up at a time when capital accumulation and real income were beginning to increase rapidly and hand in hand ; when accumulation was fast becoming the province of the capitalists rather than of the landed proprietors ; and when the political conflict between the capitalists and the landed proprietors was beginning to come to a head. Those whose sympathies lay with the new economic and political order seized on Smith's theory of accumulation to bolster up their approval, and some of them, going further than Smith himself had ever done, maintained that there was no limit to the amount of capital which could be accumulated in a country. Those who feared or were suspicious of the new order, on the other hand, asserted that there were definite limits to the accumulation of capital. Each group produced a theory of consumption to support its opinion. The first nailed its colours to the mast of Say's Law. The second argued that an over-rapid accumulation might be checked by a deficiency of effective demand, and that " unproductive consumers " (such as landlords, stockholders and clergymen), although they now contributed little to accumulation, might still play a useful social role by helping to maintain demand at the requisite level. This is obviously a greatly over-simplified account of the motives and content of a long and complicated controversy (for example, the last remark hardly applies to Sismondi !), but it does, I suggest, provide us with a useful frame in which to set the actual events.

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[1] *Wealth of Nations* (Everyman edn.), Vol. II, p. 155.

[2] *Ibid.*, Vol. I, pp. 310–12.

[3] *Ibid.*, p. 302.

III

William Spence seems to have been the first, at least in England, to put forward a more or less coherent underconsumptionist case. But there had already been a certain amount of softening-up. Smith himself, for example, had stated several times that profits tended to fall as accumulation increased.[1] Edmund Burke, in a remarkable passage in his *Reflections on the Revolution in France*, had argued that " the idle expences of monks " were useful in helping " to distribute the surplus product of the soil "—an argument which was essentially based on the Physiocratic scheme of circulation.[2] Germain Garnier, the French follower of the

[1] *Wealth of Nations*, Vol. I, pp. 78, 80 and 316. Cf. *Edinburgh Review*, October 1804, pp. 113 ff.

[2] Burke, *Select Works* (Clarendon Press edn., 1886), Vol. II, pp. 189–90. " In every prosperous community ", Burke writes, " something more is produced than goes to the immediate support of the producer. This surplus forms the income of the landed capitalist. It will be spent by a proprietor who does not labour. But this idleness is itself the spring of labour; this repose the spur to industry ". The idle monks and abbots, Burke proceeds, even though they do nothing but sing in the choir, are as usefully employed as if they worked from dawn to dusk in those " pestiferous occupations, to which by the social œconomy so many wretches are inevitably doomed. . . I am sure that no consideration, except the necessity of submitting to the yoke of luxury, and the despotism of fancy, who in their own imperious way will

Physiocrats and translator of Adam Smith, had stated in his *Abrégé des Principes d'Économie Politique* (1796) that although an individual's wealth would certainly increase through saving, that of a nation could increase only per medium of an expanded consumption ;[1] and in the notes to his translation of Smith he had argued that in old countries, like those of Europe, in which capital had been accumulating over several centuries, there was an annual excess of produce " *dont la surabondance obstruerait la circulation, s'il n'était pas absorbé par une consommation proportionnée* ".[2] And Lauderdale, in his influential *Inquiry*, had strongly attacked Smith's emphasis on parsimony, stressed the regulating role of demand, and insisted that " accumulation of capital must at all times have its bounds ".[3]

Napoleon's threat of blockade may have been the occasion for the appearance of Spence's pamphlet, but it was hardly the cause. Spence himself admitted this in his rejoinder to Mill's *Commerce Defended*. Erroneous opinions in political economy, he said, " can be eradicated only by a frequent recurrence, whenever temporary topics have directed the public attention to the subject, to the great principles of the science ".[4] And Mill, too, was fully conscious of what was really at stake. He was in fact substantially in agreement with Spence's low estimate of the value of Britain's commerce,

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distribute the surplus product of the soil, can justify the toleration of such trades and employments in a well-regulated state. But for this purpose of distribution, it seems to me, that the idle expences of monks are quite as well directed as the idle expences of us lay-loiterers ". Spence made good use of this passage : see his *Tracts on Political Economy* (1822), pp. 162 and 257–8.

[1] Cited in Say, *Traité*, Vol. II, p. 397.

[2] *Recherches sur la Nature et les Causes de la Richesse des Nations* (1802), Vol. V (translator's notes), pp. 240–2. This statement, like that in the *Abrégé*, aroused the anger of Say (*Traité*, Vol. II, pp. 178–9) and probably inspired the first important statement of " Say's Law " (*ibid.*, pp. 175–9). The parallels between this controversy and the later controversies between Spence and Mill and between Malthus and Ricardo are extremely interesting.

[3] *Inquiry into the Nature and Origin of Public Wealth* (1804), p. 265 and *passim*. Lauderdale has some claim to be regarded as the earliest British under-consumptionist. Although his first main example of accumulation " pushed beyond its due bounds " was a case of accumulation in excess of *physical need* (pp. 212 ff.), his discussion contained the elements of a theory of under-consumption which might have been capable of more general application (pp. 216–8). And consideration of his second example—suggested by contemporary Sinking Fund proposals—led him to formulate a number of general principles curiously similar to those subsequently put forward by Spence and Malthus (see, e.g., pp. 251–2 and 265–7). Spence, indeed, acknowledged Lauderdale's priority on the Sinking Fund question (*Tracts*, p. 81, footnote), and James Mill agreed that " his Lordship's arguments . . . are merely those of Mr. Spence extended. They are drawn from the same source, and applied to the same end " (*Commerce Defended*, 2nd edn., 1808, p. 96, footnote). But Lauderdale was hardly a Physiocrat : the most that can be said on this point is that his strictures on the Physiocrats were rather less severe than his strictures on Smith. See, however, Haney, *History of Economic Thought* (1st edn.), p. 301.

[4] *Tracts*, p. 69.

and regarded this question as something of a side issue. "Had Mr. Spence directed his efforts", Mill wrote, "to moderate our ideas of the value of commerce, without teaching other doctrines which, first, were false, and next led to practical conclusions of the most dangerous tendency, he might have been of service to his country".[1] Spence had maintained that there were definite limits to the accumulation of capital, and that the then fashionable emphasis on the importance of parsimony was therefore misplaced. And, what was worse, he had maintained that even though the landlords and other unproductive classes now tended to spend rather than to save their revenue, they still performed a useful social function—and, indeed, that their continued and progressively increasing expenditure was essential to prosperity. Mill immediately recognised that these doctrines were actually an attack on the new order by a partisan of the old.

Spence was probably the first to see clearly that the Physiocratic pattern of production and demand, as displayed in *Quesnay's Tableau*, could with appropriate modifications provide the framework for a theory of under-consumption which would at the same time serve as a critique of capitalism and a vindication of the unproductive consumption of the landlords. The Physiocratic scheme provided, first, the notion that the "real value" of manufactured commodities was precisely equal to the value of the raw materials and subsistence goods which had been physically used up in their manufacture, so that any net profit yielded on capital employed in manufacture must be conceived as arising in the process of exchange rather than in the process of production. It provided, secondly, the basic idea that those employed in the manufacturing trades were subsisted by and dependent upon the expenditure of the agricultural surplus by the landed proprietors.[2] From these two principles it was quite legitimate to conclude, as Spence did, that the net income of the manufacturing capitalists was not an original but a derived revenue, and that any accumulation of capital out of their profits " would be at the expense of the land proprietors ".[1] But it was *not* legitimate to conclude, as Spence also did, that in European societies " expenditure, not parsimony, is the province of the class of land proprietors, and . . . it is on the due performance of this duty, by the class in question, that the production of national wealth depends ".[2] The French Physiocrats would have repudiated this suggestion (within the limits defined in the first section of this article), since it was precisely " parsimony " on the part of the proprietors—i.e. the sinking of a large portion of the *produit net* in agricultural improvements—that they were most anxious to encourage. They clearly regarded such " parsimony " as constituting a transfer and not a diminution of demand.

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[1] *Commerce Defended*, pp. 107–8.

[2] Spence recognised that they might also draw subsistence from the portion of the surplus received by the farmers, but argued that "the class of farmers may . . . be considered, with relation to the net *profit* they make, as belonging to the class of land proprietors" (*Tracts*, p. 28, footnote)—thereby by-passing one of the central difficulties of French Physiocracy. Spence was by no means a consistent Physiocrat: he argued, for example, that even though all taxes fell ultimately upon the land, the land was *not* "the only proper source of taxation" (*Tracts*, pp. 140–1). When politics conflicted with Physiocracy, Spence always allowed politics to prevail.

It is important that Spence's argument should be reproduced in a little more detail, since several of the points he makes will be met with again later. In European societies, he says, it is a condition essential to the creation of national wealth—

> that the class of land proprietors, expend the greater part of the revenue which they derive from the soil. They are the agents, through whose hands the revenue of the society passes, but in order that wealth and prosperity should accrue to the community, it is absolutely necessary, that they should spend this revenue. So long as they perform this duty, every thing goes on in its proper train.

Smith's arguments in favour of parsimony, Spence proceeds, " seem to be intended to maintain, that fresh capital may be profitably employed, in manufacturing goods which nobody will buy : for, certainly, no purchasers could be found for the goods brought into existence by the employment of new capital, if all the members of the society were to convert the greater part of their revenue into capital ". And Spence gives an example designed to show what would happen if the proprietors " ceased to expend " :

> Let us make the supposition that fifty of our great land owners, each deriving 20,000*l.* a year from his estates, which they had been accustomed to spend . . . resolved not to spend, but to save, the 1,000,000*l.* which their revenue amounted to. Is it not self-evident, that

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[1] *Tracts*, pp. 13–16.
[2] *Ibid.*, p. 32.

> all those members of the manufacturing and unproductive classes, who had, directly, or indirectly, been accustomed to draw the revenue destined for their subsistence, from the expenditure of this sum, would have their power of consuming the produce of the earth diminished, by the whole amount of this 1,000,000*l*. ?

Spence goes on to consider the evil effects of this " saving scheme ", and then tries to answer the obvious objection that " as this supposed sum would not be hoarded, . . . but would be lent on interest : It would still be employed in circulation, and would still give employment to manufacturers ". To this objection he replies :

> It should be considered, that money borrowed on interest, is destined, not for expenditure, but to be employed as capital ; that the very circumstance of lessening expenditure, decreases the means of the profitable employment of capital, and, consequently, that the employment of the sum alluded to as capital, would in no degree diminish the hardships of those who had been deprived of the revenue derived from its expenditure.

Spence's argument closes with an attempt to show that for the " constantly progressive maintenance of the prosperity of the community " it is necessary not only that the class of proprietors should spend, but also that " this class should go on progressively increasing its expenditure ". Prosperity will induce an increased population—and " how is this increased population to be subsisted, unless the class, from whom the revenue of the whole is derived, proportionably increases its expenditure ?" Two final conclusions are drawn—first, that the increase of luxury is absolutely essential to the well-being of European countries, and second, that " all taxes, however levied, in the end fall upon the soil, and are eventually borne by the land proprietors ".[1]

Mill's reply to all this can be conveniently divided into two parts. First, he draws on Adam Smith in order to attack Spence's key proposition—the idea that the act of saving, even when the savings are invested, somehow reduces the volume of effective demand. " Let not Mr. Spence be alarmed ", says Mill—

> Let him rest in perfect assurance, that the whole annual produce of the country will be always very completely

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[1] Quotations from *Tracts*, pp. 29–36.

> consumed, whether his landholders choose to spend or to accumulate. . . . No man, if he can help it, will let any part of his property lie useless and run to waste. . . . That part, however, which is destined for future profit, is just as completely consumed, as that which is destined for immediate gratification.

Second, Mill attacks Spence's assertion that a country can have too much capital. "A nation always has within itself a market equal to all the commodities of which it can possibly have to dispose", Mill contends, and puts forward his well-known version of "Say's Law" as proof:

> The production of commodities creates, and is the one and universal cause which creates a market for the commodities produced. . . . If a nation's power of purchasing is exactly measured by its annual produce, as it undoubtedly is; the more you increase the annual produce, the more by that very act you extend the national market, the power of purchasing and the actual purchases of the nation. Whatever be the additional quantity of goods therefore which is at any time created in any country, an additional power of purchasing, exactly equivalent, is at the same instant created; so that a nation can never be naturally overstocked either with capital or with commodities; as the very operation of capital makes a vent for its produce. . . . It may be necessary, however, to remark, that a nation may easily have more than enough of any one commodity, though she can never have more than enough of commodities in general. The quantity of any one commodity may easily be carried beyond its due proportion; but by that very circumstance is implied that some other commodity is not provided in sufficient proportion.[1]

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[1] Quotations from *Commerce Defended*, pp. 65–68. It should be noted that Mill's two arguments are logically distinct. The first, the "saving is spending" argument, states that unhoarded savings are spent—i.e. that accumulation, or saving-*plus-investment*, does not reduce the total volume of demand. The second, "Say's Law" proper, states that in the last analysis supply and demand must always be equal and that therefore a general glut of commodities is impossible. It is obviously possible to accept the "saving is spending" argument while rejecting "Say's Law". It is true, of course, that an acceptance of "Say's Law" implies an acceptance of the "saving is spending" argument; but it is *not* true that "Say's Law" implies "the notion that if people do not spend their money in one way they will spend it in another" (Keynes, *General Theory*, p. 20). "Say's Law" assumed that hoarding was unlikely; it did not imply that it was impossible. The villain of the piece is not so much "Say's Law"—which, after all, was not an integral part of the Classical theoretical structure—but the neo-Classical theory of interest, to which the Classical economists properly so-called did not subscribe. Cf. D. H. MacGregor, *op. cit.*, pp. 111–18.

Spence's rejoinder to Mill's attack is not particularly impressive. He insists that it was his aim " not to argue against the accumulation of capital in general, but against its accumulation in excess, and particularly by the class of land owners ". He seems to admit the principle of the Smith-Mill " saving is spending " argument, but denies its relevance to the question at issue. " We can come to a solid determination ", he asserts, " only by putting an extreme case,—by inquiring what would be the result if *all* the land holders were to save their revenue ". If they employed their savings as agricultural capital, then " the system of society must undergo a total change. All the manufacturers and idlers, which comprise five-sixths of the community, must become cultivators, or they must starve ". But such a scheme would be " stark nonsense " : the landholders would obviously refuse to " employ their revenue in feeding twelve millions of people to do work which may be performed by two millions ". If, on the other hand, they employed their savings as manufacturing capital, " then all the manufacturing capital before existing, would be useless ", while if they did not employ it themselves but lent it to the master manufacturers it would be impossible for employment to be found for so much additional capital " at the moment when those who are to employ it have lost customers for their articles to the same amount ". So far as Mill's formulation of " Say's Law " is concerned, Spence frankly confesses that he is unable to understand it. Does Mill mean to assert, he asks, " that capital may be employed *ad infinitum* in producing new manufactures, while no addition is made to agricultural capital " ? He has little difficulty in disposing of this suggestion :

> Additional capital can be employed in new manufactures only when there are fresh hands to be engaged. Now, how could Mr. Mill support his increased population, if there were no increase of food provided for them ? Half of his manufacturers might make shoes, and the other half coats ; but while they were starving for want of bread, it would be a poor consolation to tell them that they might exchange one for the other.[1]

This idea, that the extension of manufacture is limited by the size of the agricultural surplus, was perfectly familiar, having been popularised in Britain by writers like Cantillon,

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[1] Quotations from *Tracts*, pp. 152–62.

Steuart, Paley and Malthus, and Mill would not have dreamed of disputing it as a general principle. It was, of course, true that a nation could have too much of a *particular type* of capital. But Mill—and Ricardo, whose friendship with Mill began at the time of the publication of *Commerce Defended*—refused to be converted to the view that it could have too much of capital *in general.*

IV

Although the " temporary topics " which had provided the occasion for Spence's pamphlet soon ceased to agitate the mind of the public, the theoretical problems associated with the idea of under-consumption continued to be debated during the next decade. Chalmers, for example, argued that " It is the degree of expenditure . . . which imposes a limit on the use and extension of capital, and if universal accumulation were to go on, the increase of capital and diminution of expenditure would reduce the profit to a mere nothing, and all further inducement to accumulation would cease ".[1] Interesting accounts of certain aspects of the problem were contained in the works of Buchanan and Mrs. Marcet.[2] Malthus and Ricardo corresponded with one another on the general glut question in 1814, and at the same time the new theory of rent was worked out—a theory which enabled Ricardo to blame the falling rate of profit on a factor which operated outside the economic system itself.[3] Simon Gray, in his unduly neglected work *The Happiness of States*, gave a surprisingly " modern " account of the effects which " stagnations in the foreign market " might have on demand and employment at home, and the remedies which should be applied to meet the situation.[4] And after the crisis of 1815 Robert Owen hastened to popularise the notion that the cause of all the trouble lay in the fact that the productive power of the nation had increased enormously " without increasing the power of consumption in the same proportion ".[5]

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[1] *Enquiry into the Extent and Stability of National Resources* (1808), p. 237. Chalmers at this time believed that there was " little danger " of this happening.

[2] Buchanan, *Observations* (1814), pp. 75–9; Jane Marcet, *Conversations on Political Economy* (1816), Chapter 22, *passim.*

[3] Ricardo, *Letters to Malthus*, pp. 34–55, and *Principles*, Chapter 21, *passim.*

[4] *The Happiness of States* (1815), pp. 83–91.

[5] *The Life of Robert Owen* (1858), Vol. IA, p. 110. Cf. also pp. 54–5 and 213–6 *ibid.*, and the Owenite pamphlet *Mr. Owen's Arrangements, etc.* (1819), *passim.* Another contemporary work with under-consumptionist tendencies (see pp. xvii-xx, 365–7, 386–90, etc.)—David Laurie's *Treatise on Finance* (1815)—is referred to by D. H. MacGregor, *op. cit.* p. 122, footnote.

But the next really important event in the history of theories of under-consumption was the publication in 1819 of Sismondi's *Nouveaux Principes d'Économie Politique.* Whereas Spence, Malthus and Chalmers wrote on behalf of the landlords and " unproductive consumers ", Sismondi, although by no means a socialist,[1] wrote on behalf of the proletariat. His main aim was to emphasise and explain the disproportion between production and consumption which appeared to have become chronic in the modern world. He never ceased to castigate those economists who maintained that consumption was " *une puissance sans bornes, toujours prête à dévorer une production infinie* ".[2] Nothing was easier, he believed, than for production and consumption to get out of step with one another.

Sismondi's treatment of this theme can perhaps be discussed under two separate headings without unduly distorting his meaning. First, he interested himself in the social and economic causes of those rigidities, immobilities, time-lags and other frictions which prevented equilibrium being reached as smoothly and painlessly as it was assumed to do in the works of the " chrematistical " economists. He never sought seriously to deny that under capitalism there were powerful tendencies towards a state of equilibrium : he was too earnest a disciple of Smith for that. What he did deny was that this equilibrium could ever in fact be achieved, under the institutional set-up peculiar to modern capitalism, except at the cost of appalling suffering for the working people. And the frictions which caused economic dislocations, he believed, were inherent in rather than excrescent upon the modern industrial system. The impossibility of accurately forecasting the demand for one's product, the comparative immobility of specialised labour and fixed capital, the displacements caused by the introduction of machinery, and even the difficulty of adjusting population to revenue—all these were conceived by Sismondi to be essentially modern phenomena, associated almost exclusively with industrial capitalism.[3]

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[1] Marx and Engels, in the *Communist Manifesto*, after a generous appraisal of the positive elements of Sismondi's teaching, say that it " aspires either to restoring the old means of production and of exchange, and with them the old property relations, and the old society, or to cramping the modern means of production and of exchange within the framework of the old property relations that have been, and were bound to be exploded by these means. In either case, it is both reactionary and Utopian. Its last words are : Corporate guilds for manufacture ; patriarchal relations in agriculture ". Quoted from *A Handbook of Marxism* (1935), p. 50.

[2] *Nouveaux Principes* (1st edn. 1819), Vol. I, p. 78.

[3] *Ibid.*, Vol. I, pp. 301–13, and Vol. II, pp. 256–65 ; *Études sur l'Économie Politique* (1837), Vol. I, pp. 142–54.

Second, Sismondi sought to penetrate even further below the surface of economic reality in order to reveal certain more general and deep-seated tendencies towards under-consumption. Here, like Marx, he was convinced that the fact that the labourer had been dispossessed of his means of production was the key to a proper understanding of the forces at work. "*Nous sommes*", he wrote in the *Études*, "*et l'on ne l'a point assez remarqué, dans une condition tout-à-fait nouvelle de la société, sur laquelle nous n'avons point encore d'expérience. Nous tendons à séparer complétement toute espèce de propriété d'avec toute espèce de travail, à rompre toute clientèle entre le journalier et le maître, à ôter au premier toute espèce d'association dans les profits du second*". This separation of property and toil forced the labourer into a state of dependence upon the capitalist, so that his income tended always to be reduced to the minimum of subsistence. The income of the capitalists and landed proprietors, on the other hand, tended to increase as time went on, and this ever-widening inequality of distribution made a smooth adaptation of production to demand absolutely impossible:

> *Le même revenu est bien employé par le riche et par le pauvre, mais il n'est pas employé de la même manière. Le premier remplace beaucoup moins de travail que le second; il favorise beaucoup moins la population, et sert par conséquent bien moins à la reproduction de la richesse. . . . Si le même revenu est distribué entre quatre-vingt-dix-neuf familles très-misérables, et une très-opulente, l'encouragement qu'elles donneront à l'industrie nationale sera infiniment moindre. . . . Il est assez digne de remarque que, tandis que l'effet de l'augmentation des capitaux, est en général de concentrer les travaux dans de très-grandes manufactures, l'effet des grandes richesses est d'exclure presque absolument les produits de ces très-grandes manufactures, de la consommation des riches. Chaque fois qu'un objet, auparavant produit par l'habileté d'un ouvrier, devient l'ouvrage d'un mécanisme aveugle, il perd quelque chose de sa perfection, comme aussi de son crédit aux yeux de la mode. . . . Ainsi donc par la concentration des fortunes entre un petit nombre de propriétaires, le marché intérieur se resserre toujours plus, et l'industrie est toujours plus réduite à chercher ses débouchés dans les marchés étrangers, où de plus grandes révolutions la menacent.*[1]

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[1] Quotations from *Études*, Vol. I, pp. 91–2, and *Nouveaux Principes*, Vol. I, pp. 329–42.

Once property and labour had been separated, the system of competition replaced that of associative effort. Under conditions of capitalist competition, production tended to be regulated not according to the actual demand for one's product (which could never be exactly determined) but according to the size of one's capital, with the result that there was a permanent tendency towards over-production. Each producer would strive to produce more and to sell at a lower price than his competitors ; he would seek to reduce his costs of production by paying less rent to the landlord, less interest to the rentier, and less wages to the labourers ; and he would actually succeed in reducing these payments, since the impact of the increased output on the market would lower the price of the product for all producers. As a result of such operations there would be a constant tendency for output to increase and for consuming power to diminish or at least not to increase in the same proportion—a tendency which would be intensified by the displacement of labour due to the introduction of machinery and by the extension of bank credit. To this argument it might be objected that the additional capital employed to increase production would in fact be spent, and that demand would accordingly increase proportionately with production. It was quite true, Sismondi admitted, that invested savings were spent ; but since the price per unit of the factors of production tended to diminish as production increased, it was still true to say that "*la consommation ne marchera point d'un pas égal avec la production*".[1]

Sismondi was free from any desire to apologise for the "unproductive consumers" of his day, and he did not commit the vulgar error of supposing that invested savings remained unspent. And it seems at first sight that he also succeeded in emancipating himself from those Physiocratic ideas in which most of the other early under-consumptionists were still to some extent entangled. The theoretical basis upon which Sismondi built, for what it was worth, was taken from Smith rather than from Quesnay. The influence of Physiocratic ways of thought is much less obvious in Sismondi's case than in, say, Spence's, since Sismondi deliberately attempted to discard the Physiocratic framework. Yet there are certain aspects of his work which on closer examination seem to suggest that we would be unwise to place Sismondi too far outside the Physiocratic pale. There is, to begin with, his marked preference for an agricultural over a manufacturing economy, and the distinctly Physiocratic tone of some of the passages in which he states it.[1] Again, the dependence of the manufacturing sector upon the agricultural sector, and the importance of achieving a proper "balance" between them, are often emphasised.[2] And sometimes he even seems to accept the idea that the incomes of the manufacturing classes are ultimately paid out of the *produit net* accruing to the proprietors and cultivators.[3] In themselves such passages are not particularly significant: similar remarks—though not often in such profusion—are quite frequently to be found in the works of contemporary authors who can scarcely be accused of any attachment to Physiocracy. But it will be argued in the last section of this article that their occurrence in Sismondi's work was not fortuitous, and that his treatment of some of the leading under-consumptionist themes was strongly influenced by ways of thought which were essentially Physiocratic.

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[1] *Études*, Vol. I, pp. 144–51 ; *Nouveaux Principes*, Vol. I, pp. 374–84. There was, of course, no real reason why monetary demand *should* increase proportionately with physical productivity. Sismondi seems to have modified his views on this subject after an interview with Ricardo : see the long note commencing on p. 81 of Vol. I of the *Études*.

V

It is quite possible that Malthus borrowed more from Sismondi than he was prepared to acknowledge. Some of the leading ideas of Book Two of the *Principles of Political Economy* may well have owed their origin to passages in the *Nouveaux Principes*.[4] But there are at least two features of Malthus's approach, quite apart from the obvious political divergences, which mark it off sharply from Sismondi's and which it is necessary to consider if Malthus's particular brand of under-consumption theory is to be placed in its proper perspective.

In the first place, Malthus's leanings towards Physiocracy were much more direct and conscious than were Sismondi's. Book Three of the second edition of the *Essay on Population* contained, indeed, some of the most Physiocratic passages which had appeared in British economic writing since Cantillon. Malthus pointed out that Smith's definition of the wealth of a nation as " the annual produce of its land and labour " involved a dangerous abstraction from the physical characteristics of the commodities produced. " Wealth " according to Smith's definition, might increase while the condition of the labouring poor actually worsened. For example, if a nation's savings over a period were invested solely in manufacture and not in agriculture, its " power of supporting labourers " would at best remain static, and even if the poor retained the same command over the necessaries and conveniences of life a greater proportion of them than before would be employed in manufacture, an occupation much more unhealthy and precarious than agriculture. Malthus then went on to compare the Physiocrats' definition of wealth with that of Smith, and although he criticised the Physiocrats in certain respects he adopted a number of their basic premises. For example, he said that manufactures, strictly speaking—

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[1] E.g., *Nouveaux Principes*, Vol. I, pp. 150–52. Cf. M. Tuan, *Sismondi as an Economist*, p. 47.

[2] *Nouveaux Principes*, Vol. I, pp. 292, 296–300, 372–3, etc.

[3] E.g. *Études*, Vol. II, pp. 246–7.

[4] For example, Malthus's idea that the consumption of the labourers employed in making a commodity can never alone furnish an adequate market for it, and the broad conclusions he drew from this idea, are clearly foreshadowed in Chapters 4 and 5 of Book 2 of the *Nouveaux Principes*. And the fact that an increase in accumulation must be preceded by an increase in the national revenue if over-production is to be avoided is emphasised strongly by Sismondi in Chapters 3 and 4 of Book 4. Cf. Marx, *Theorien über den Mehrwert* (French edn.), Vol. VI, pp. 81 ff., and M. Tuan, *op. cit.*, pp. 56–7 and 66–7.

> . . . are no new production, no new creation, but merely a modification of an old one, and when sold must be paid for out of a revenue already in existence, and consequently the gain of the seller is the loss of the buyer. A revenue is transferred, but not created.

He proceeded to contrast the " surplus produce of the cultivators ", which was measured by rent, with a " net monied revenue, arising from manufactures " : whereas the former would support all those people in the nation who did not labour on the land, a " net monied revenue " of the same extent would simply " throw the country in which it existed into an absolute dependence upon the surplus produce of others ". Then again, he asserted that " Land, in an enlarged view of the subject, is incontrovertibly the sole source of all riches " ; that the system of the Physiocrats was the only one " by which commerce and manufactures can prevail to a very great extent, without bringing with them, at the same time, the seeds of their own ruin " ; that " the surplus produce of the land is the fund which pays everything besides the food of the cultivators " ; that English commerce and manufactures (whose " shewiness " blinded people to the true position) were really the consequence rather than the cause of " the wealth, power, and prosperity of England " ; and that the superiority of England over France lay primarily in the " great surplus produce " which English agriculture produced and which " enables her to support such a vast body of manufactures, such formidable fleets and armies, such a crowd of persons engaged in the liberal professions, and a proportion of the society living on money rents, very far beyond what has ever been known in any other country of the world ". And, finally, he insisted that whichever of the two definitions of wealth was adopted—

> . . . the great position of the Economists will always remain true, that the surplus produce of the cultivators is the great fund which ultimately pays all those who are not employed upon the land. Throughout the whole world, the number of manufacturers, of proprietors, and of persons engaged in the various civil and military professions, must be exactly proportioned to this surplus produce, and cannot in the nature of things increase beyond it. . . . In proportion as the labour and ingenuity of man, exercised upon the land, have increased this surplus produce, leisure has been given to a greater number of persons to employ themselves in all the inventions which embellish civilized life. And though, in its turn, the desire to profit by these inventions, has greatly contributed to stimulate the cultivators to increase their surplus produce ; yet the order of the precedence is clearly the surplus produce.

It is true that many of these statements were eventually purged as the *Essay* proceeded through its successive editions, but there is no doubt that Malthus retained to the end at least three of the leading ideas—that agriculture was superior to manufacture, that the agricultural surplus held a key position in the economy, and that it was dangerous to abstract from the physical characteristics of the commodities produced when framing one's basic model.[1]

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[1] Quotations from *Essay* (2nd edn., 1803), pp. 420–42. A number of important changes were made in this part of the work in the third and fourth editions, many of them designed to weaken the links with Physiocracy. During the gap of ten years between the fourth and fifth editions, Spence's pamphlet appeared, claiming Malthus as a fellow-traveller of the Physiocrats, and Ricardo criticised the Physiocratic chapters in personal conversation with Malthus (*Letters to Malthus*, p. 107). Possibly these events—and of course contemporary economic developments—were responsible for the radical rearrangement and rewriting of these chapters in the fifth edition of 1817. The last passage quoted above was the only one which survived without substantial amendment—and even in that the substance of the first sentence was omitted.

In the second place, Malthus's theory of value was much more developed and much more closely integrated with his under-consumption theory than Sismondi's. Sismondi had contented himself with distinguishing between what he called the " intrinsic value " and the " relative value " of a commodity—" *l'une s'établit par la production, l'autre par la concurrence* ".[1] Malthus, on the other hand, deliberately set out to attack not only the labour theory as Ricardo had developed it but also the very foundations of the Smith-Ricardo concept of value. Adam Smith, rejecting the old " physical cost " concept of value and the Mercantilist idea of " profit upon alienation ", had identified exchange value with " natural price "—that is, a price sufficient to cover the costs of production *including profit at the customary rate.* Under conditions of competitive equilibrium, when supply and demand were assumed to balance, all commodities tended to sell at a value equivalent to this " natural price ", although deviations of the actual " market price " from the value or " natural price " of the commodity might be caused by temporary discrepancies between supply and demand. If, then, relative prices tended to be determined by relative costs of production, what determined costs of production ? As is well known, Smith vacillated between a " labour commanded " and a " labour embodied " explanation, while Ricardo definitely accepted the latter. Malthus began his attack on this structure by arguing that the prices of monopolised commodities and agricultural products—" a class of commodities of the greatest extent "—were almost always " determined upon a principle distinct from the cost of production ". And even in the case of manufactured products, where " the existing market prices much more frequently coincide with the costs of production ", Malthus argued that our experience shows us—

> . . . that any alteration in the proportion of the demand to the supply quite overcomes for a time the influence of these costs ; and further, when we come to examine the subject more closely, we find that the cost of production itself only influences the prices of these commodities, as the payment of this cost is the necessary condition of their continued supply in proportion to the extent of the effectual demand for them.

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[1] *Nouveaux Principes*, Vol. I, pp. 281-6. The context shows clearly that Sismondi, like Malthus, was anxious to use the distinction as the basis for a demonstration that the realisation of a surplus over cost was largely dependent upon the conditions of demand.

If this be true, Malthus concluded, " it follows that the great law of demand and supply is called into action to determine what Adam Smith calls natural prices, as well as what he calls market prices."[1] It follows, too, that the quantity of labour either commanded by or embodied in a commodity cannot *determine* the value of the commodity, although it may be capable of use as a *measure* of its value. In Malthus's opinion the value of a commodity was *determined* by supply and demand and its best *measure* was the amount of labour the commodity would command. Now if the commodity is to be sold at a profitable price, the amount of labour which it commands must be greater than the amount of labour which is embodied in it, the excess representing the profit yielded. And it is obvious that the consumption of the labourers directly employed in the production of the commodity cannot alone furnish an adequate demand for it: the selling price, if a profit is to be earned, must exceed the wage-costs. If one adopts this way of looking at the process of production and exchange one may easily be led, as Malthus was, to assert that the size of the excess—and, indeed, its very existence—is dependent upon the effective demand for the product exercised by those who are not directly employed in its production.[2] And a bias towards Physiocracy will encourage this view, if only because the idea that profits (at least in manufacture) do not originate in the process of production but are somehow paid out of the incomes of the purchasers is of the essence of the Physiocratic framework.

Malthus believed that this line of thought could provide an effective answer to the " saving is spending " argument with which Ricardo, Say and Mill were endeavouring to protect themselves against the under-consumptionist attack. Malthus, it must be emphasised, always meant saving-*plus-investment* when he spoke of " accumulation ", " parsimony " or " saving ". " No political economist of the present day ", he wrote, " can by saving mean mere hoarding ".[3] By " saving " Malthus meant exactly what all the British Classical economists meant by it—the employment of " productive " instead of " unproductive " labourers out of the net revenue.[1] It could not, therefore, be denied that when additional savings were made they were in actual fact transferred to and spent by the labourers who were employed by them ; but, as we have seen, it *could* be denied that the demand of these workers alone was sufficient to enable the product to be sold at a profitable price. Whence, then, was the necessary extra demand to come ? It could hardly come from the capitalists, since by hypothesis they were saving-and-investing more and therefore spending less on personal consumption. It seemed obvious to Malthus that the extra demand could only come from the community's " unproductive consumers "—the landlords, stock-holders, menial servants, clergymen, etc. who consumed but did not produce and who were therefore capable of maintaining " such a balance between produce and consumption as will give the greatest exchangeable value to the results of the national industry ". It followed that if saving-and-investment increased rapidly without a " previous increase in the value of the national revenue " (the most potent cause of which was an increase in the expenditure of unproductive consumers), a number of commodities would be produced which could not be sold at a profitable price. This glut of commodities would cause such a reduction of profits " as very greatly to diminish both the power and the will to save ".[2]

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[1] *Principles*, (2nd edn., 1836), pp. 70–71.

[2] Malthus did not deny that the state of cultivation of the land ultimately and in the last resort governed profits. But he relegated this cause to the status of a " limiting principle ", and postulated " the state of the demand and the supply " as the " regulating principle ". Cf. *Letters to Malthus*, p. 47, and Malthus's *Principles*, pp. 271–82.

[3] *Principles*, p. 38.

This somewhat precarious thesis Malthus endeavoured to support with all the subsidiary arguments he could muster. Accumulation, he admitted, was certainly a *condition* of the increase of wealth, but by itself it did not afford an adequate stimulus to that increase. Those who believed the contrary, he remarked (with some justice), " have considered commodities as if they were so many mathematical figures, or arithmetical characters, the relations of which were to be compared, instead of articles of consumption, which must of course be referred to the numbers and wants of the consumers ". They have also failed to take into consideration " the influence of so general and important a principle in human nature, as indolence or love of ease ". They have assumed that " the consumption of the labourers employed by those whose object is to save, will create such an effectual demand for commodities as to encourage a continued increase of produce ". They have assumed that in the process of saving all that was lost by the capitalist is gained by the labourers—but if the general glut that follows over-accumulation creates unemployment, how can Ricardo be right in saying that in such a case " the check to the progress of wealth would be but temporary " ? Obviously a " previous increase in the value of the national revenue " is required, both to give the necessary stimulus to accumulation and to make that accumulation " effective in the continued production of wealth ". The causes most favourable to this increase in value are " the division of landed property ", " internal and external commerce ", and, last but not least, " the maintenance of an adequate proportion of the society employed in personal services, or otherwise entitled to make a demand for material products without contributing directly to their supply ". The capitalists have the power but not the will to consume their revenue, since " the great object of their lives is to save a fortune " and therefore " they could not afford an adequate market to each other by exchanging their several products ". In the class of unproductive consumers " the landlords no doubt stand pre-eminent ", but " if they were not assisted by the great mass of individuals engaged in personal services, whom they maintain, their own consumption would of itself be insufficient to keep up and increase the value of the produce ".[1]

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[1] Malthus makes this perfectly clear in literally dozens of places, and it would not be necessary to insist upon the point here were it not that a certain amount of misunderstanding seems to exist among modern commentators. Mr. O'Leary, for example (*Journal of Political Economy*, Vol. L, pp. 910–11), is puzzled by the fact that Malthus did not state definitely anywhere that hoarding plays " a significant role in aggravating a deficiency in effective consumer demand ". Mr. O'Leary seems to feel, however, that Malthus must have meant it even if he did not definitely say it, and, on the very slightest textual evidence, concludes that " in Maltnus' theory excessive savings cause a damming-up of idle purchasing power, but he was not altogether clear as to where the damming-up process takes place ". There is, however, another possible solution to the mystery—that Malthus's argument was simply a bad one. It is amusing, in the light of certain modern discussions on this point, to read Malthus's own comments on an author who identified saving with hoarding : see *Essay* (1st edn., 1798), pp. 282–4 and 295–7.

[2] Quotations from *Principles*, pp. 413, 365 and 315. There is not a great deal in common between Malthus's theory and those which are generally associated with the Keynesian analysis to-day. Not only does Malthus deliberately assume that savings are automatically invested, but he also implies that an increase in investment will widen and not narrow a gap between effective demand and supply. If Ricardo committed a gross heresy in arguing that demand for commodities is not demand for labour, surely Malthus committed an even grosser one in arguing that demand for labour is not—or at least is not sufficient—demand for commodities.

Ricardo had admitted, in his *Principles*, that " If every man were to forego the use of luxuries, and be intent only on accumulation, a quantity of necessaries might be produced, for which there would not be any immediate consumption. Of commodities so limited in number, there might undoubtedly be a universal glut." But this was as far as he was prepared to go, and even this case, he believed, did not "impugn the general principle".[1] If such a thing happened (which was, to say the least, extremely unlikely), "profits would be low because wages would be high", and in any event the condition would only be temporary since the principle of population would eventually rectify matters.[2] And Ricardo emphasised that he had only admitted that "*of commodities so limited in number*" there might be a universal glut. But, in actual fact—

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[1] Quotations from *Principles*, pp. 361–7, 320, 322, 326, 365-6, 372 and 400.

> Would only such a limited number of commodities be produced? Impossible, because the labourers would be glad to consume conveniences and luxuries if they could get them, and in the case supposed to promote the very object of the masters it would be in their interest to produce the commodities for which their labourers had the will and power to pay.[3]

Ricardo's attitude on this point is typical of his attitude to the whole of Malthus's argument. In his own reasoning he always assumed, first, that the pattern of class demand would automatically change as class income varied, and, second, that production would speedily adapt itself to any marked change in the pattern of demand.[4] Malthus, on the other hand, often appeared to base his belief in the possibility of a general glut either on the assumption that the pattern of class demand (particularly working class demand) might remain unaltered for long periods in spite of changes in income,[5] or on the assumption that production would fail to adapt itself to changes in the pattern of demand. An "inordinate passion for accumulation", Malthus wrote, will inevitably lead to a supply of commodities beyond what the "structure and habits" of society will permit to be profitably consumed.[6] Ricardo was not prepared to allow that the "structure" (of production) and "habits" (of consumption) under competitive capitalism were as rigid as Malthus supposed, but the real difference between the two men lay deeper than this. It was not so much that they differed over the degree of rigidity of the "structure and habits" of their own society, as that they each envisaged their own society *in terms of a different assemblage of "structure and habits"*. Whereas Ricardo's model was built on the basis of concepts and patterns appropriate to a developed capitalist society, Malthus on occasions still tended to think in terms of certain ideas and relationships which were appropriate to an older type of society—a society which was essentially Physiocratic in character.

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[1] *Works* (ed. McCulloch), p. 176.

[2] *Notes on Malthus*, p. 159.

[3] *Ibid*, p. 166.

[4] Cf. *Letters to Malthus*, p. 49.

[5] Cf. the letter from Malthus to Ricardo quoted in Keynes, *Essays in Biography*, p. 140; also *Principles*, p. 321.

[6] *Principles*, p. 325.

VI

The last two under-consumptionist works to be considered in this article—the anonymous pamphlet *Considerations on the Accumulation of Capital, etc.* (1822) and Thomas Chalmers' *Political Economy* (1832)—need not detain us long.

The *Considerations* does little more than echo Malthus, and its only real virtue lies in the fact that its complete lack of subtlety exposes in a rather startling manner a number of the contradictions implicit in Malthus's contribution. The basic assumptions are the same: that a commodity must command more labour than is embodied in it, that value is determined by supply and demand, that the workers will never demand anything but necessaries even if their income increases,[1] and so on. In two respects the author goes rather further than Malthus: he states in one place that "the proportion in which the net revenue of a country is saved and spent must be practically the great regulator of profits"; and towards the end of the pamphlet he maintains quite categorically that demand for labour is not demand for commodities.[2] And in one section he outlines with some precision the nature of the "structure and habits" of the type of economy which both he and Malthus tended to take as their model. It is obviously necessary, he argues, that net revenue should be partly spent unproductively and partly saved if wealth is to increase, but how is the proper proportion between saving and spending to be determined? This must, he answers, "in every particular country, depend upon its situation and circumstances generally, but more particularly on the fertility of its land". Enlarging on the latter point, he goes on as follows:

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[1] *Considerations*, pp. 11–12. Cf. Sismondi, *Nouveaux Principes*, Vol. I, pp. 80–81.

[2] *Considerations*, p. 30, and pp. 39 ff.

> A country whose soil was of so poor a quality as to yield but little more than sufficient to maintain the cultivators, could not possibly support a very large body of unproductive consumers; while one whose lands were of great natural or acquired fertility would not only be enabled to maintain a considerable body of unproductive labourers, but would absolutely require a much larger unproductive consumption, in order to give the fullest development to its productive powers. In no country, however, is the land so poor as not to yield some surplus produce; and as the whole of the labouring population cannot, therefore, be employed in raising necessaries, the remainder, if they be productive labourers, must be employed in the production of superfluities, and a proportionate degree of unproductive consumption must be always requisite to give effect to their labours, since, without it, their commodities could not possibly find a market.

There follows a long Physiocratic passage quoted from Paley (somewhat similar to the comments on the agricultural surplus made by Malthus in the *Essay*[1]), which the author adduces as an illustration of the doctrine he wishes to lay down—that production cannot be carried "to its utmost extent" unless "they who have revenue at their command will give it in exchange for that particular description of commodities which are objects of unproductive expenditure".[2]

It is clear from all this that we have not come very far from Spence. We are still in a society in which the landlords, cultivators and "manufacturers" are the only classes between whom it is deemed necessary to distinguish, and in which the landlords "support" the manufacturers by presenting the agricultural surplus to them in exchange for the luxuries which they produce. The theory of under-consumption as Malthus and his followers developed it depends to an extent that is not generally realised upon an essentially Physiocratic view of the pattern of production and demand. This is certainly *one* way of looking at society in all its stages (at least after the establishment of manufactures); but it is hardly the most useful way of looking at a modern society in which the dominating position formerly assumed by land has now been usurped by capital.

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[1] Quoted above, p. 252.

[2] Quotations from *Considerations*, pp. 19–25.

With Chalmers, too, we are in the same Physiocratic realm. His division of classes is substantially the same, although he endeavours to bring it a little more up to date by dividing the producers of necessaries into "agricultural" and "secondary" producers. His landlords, who "have a natural superiority over all other classes of men", exchange the agricultural surplus which accrues to them in the form of rent for the luxury goods produced by the so-called "disposable" population—"disposable" because the landlords may dispose of their services in whatever manner they please. Capital possesses no "creative and emanating power"; manufactures bear no "creative part in augmenting the public revenue"; food is the "chief article of maintenance", and it is therefore obvious that "principally with the holders of this maintenance, is lodged the power of replacing the outlays of the capitalist". It is quite clear that Chalmers regards the profits yielded in manufacture as being paid out of the agricultural surplus. Profits are dependent upon, and in fact originate in, the process of exchange.[1] In general, Chalmers follows Malthus fairly closely, extending his analogies and reproducing his illustrations. Value and profit are determined by supply and demand; over-production is possible notwithstanding the fact that "saving is spending"; the agricultural surplus is the "original fund out of which are paid the expenses of art, and science, and civilization, and luxury, and law, and defence"[2]—and so on. His differences with Malthus over the general glut question are mainly differences of emphasis. For example, Chalmers' illustrations are usually more extreme than Malthus's, assuming greater and more sudden changes; he gives more attention to the limitations imposed upon the expansion of capital by the state of agriculture; and he lays rather more stress on the mechanisms which ensure a restoration of equilibrium after a dislocation has occurred.[3] It seems obvious that both Chalmers and Malthus were led towards their under-consumptionist conclusions by looking at modern capitalist society in terms of a collection of concepts originally derived from a very different institutional set-up. Our final task is to relate these concepts to the environment which gave birth to them, and to compare them with the set of ideas employed by Ricardo.[1]

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[1] Quotations from *Political Economy*, pp. 63, 80, 557 and 86. Chalmers' views regarding the subordinate position of profits are set out more clearly in his *Enquiry* (1808), particularly in Chapters 2 and 4.

[2] *Political Economy*, p. 46.

[3] *Ibid.*, pp. 113–17. Cf. Malthus, *Principles*, p. 433.

VII

Historians of economic thought have long been familiar with the idea that certain sets of ideological concepts can usefully be said to be determined by, or at least in a significant sense appropriate to, a given social and economic structure. It is now almost 120 years since Richard Jones, in his introductory lecture at King's College, London, demonstrated that " wealth, and the mode of its distribution " may assume " an active influence in creating the ties which bind the body politic together, and determine, by their form and complication, its character, and often its resources ".[2] And since Jones's time the idea has become something of a commonplace. It is difficult, indeed, to understand how any historian of economic thought who wants to *interpret* the work of an author or a period can possibly do without it. A historian of music might not, perhaps, find it quite as useful: after all, a musician's work does not consist of an analysis and generalisation of the economic experience of his age—or at least does not directly consist of it. But it is, of course, precisely of this that the work of an economist does consist. If it does not, he is not an economist.

It is sometimes suggested today—possibly as a reaction to the extreme and arid relativism to which in the hands of some economists the idea I am now discussing was occasionally permitted to lead—that the economist should primarily concern himself with " the elucidation of the implications of the necessity of choice in various assumed circumstances ",[3] and should study the " historico-relative " material only for the purpose of drawing *subsidiary* postulates. If the Classical economists had followed this advice, our idea would certainly be of little use as a tool of analysis in connection with the present problem. But fortunately they did not. Their leading propositions, it is true, are often framed in a manner which suggests that they were conceived by their authors as eternal truths. This, however, is rather because they tended to regard capitalism itself as an eternal category than because they were trying to erect principles which would be valid for other types of society as well. Ricardo, as Marx observed, knew of no form of society " outside of the bourgeois form " —unless it was the " parallelograms of Mr. Owen ".[1] If this is so, if the Classical economists were simply concerned to generalise from their own economic experience, our idea remains useful and indeed indispensable. Naturally it must be used with caution. It cannot be applied automatically. Above all, one must beware of implying that the economic environment itself " produces " theories. Economic environments do not have ideas and cannot write treatises on political economy : these are functions reserved for men and women. But economic environments can and do set fundamental problems for men and women of goodwill to solve. How to increase national wealth ; how to make the best use of a given stock of scarce resources ; how to cure chronic unemployment ; how to choose between alternative investment variants in the absence of a price mechanism—all these are basic problems which economic environments have set or are setting for economists to solve. Confronted with an important change in environment which either creates a new problem or renders the orthodox solution of an old one implausible, the economist of genius will survey the economic categories and relationships which are now prevalent in the real world around him and will *select* those which he regards as most significant in relation to the problem. He will then decide to what extent the ideas and techniques of the orthodox system are still relevant, and will make use of those which remain valuable in the new system of functional relationships which he builds up. The environment sets the problem and provides the raw material for its solution. It is in the process of *selection* from this material, and in the moulding of the selected elements into a new system of theoretical concepts and inter-relations, that the genius—and the political bias—of the economist reveal themselves. Having witnessed a conspicuous example of this work of system-building in our own time, we should find it easier to appreciate comparable examples further back in the past.

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[1] The possibility of a general glut was recognised by a number of less important writers at this period. See, for example, John Craig's *Remarks on Some Fundamental Doctrines in Political Economy* (1821), Chapter 3; Robert Hamilton's *Progress of Society* (1830), Chapter 19; and John Cazenove's *Outlines of Political Economy* (1832), Chapter 19.

[2] *Literary Remains*, p. 554. Jones also clearly recognised that " those relations between the different classes which are established in the first instance by the institution of property in the soil, and by the distribution of its surplus produce " are " afterwards modified and changed (to a greater or less extent) by the introduction of capitalists, as agents in producing and exchanging wealth " (*ibid.*, p. 560).

[3] Robbins, *Nature and Significance*, p. 83.

Consider a society which is not as yet dependent to any great extent upon foreign trade, and in which agricultural production plays a predominant role. Let us assume that capitalist methods of production in both agriculture and manufacture are not unknown, but that so far they have been applied with evident success only in the field of agriculture, and even there only on a fairly small scale. Let us assume further that such manufactures as exist are primarily concerned with producing luxury goods which are purchased in the main by the landlords—the only social class which normally receives an income substantially higher than the subsistence level. The success of capitalist methods in agriculture has given the economists of our society some notion of the manner in which agricultural productivity may be increased by capital investment, and this has caused them to examine the problem of increasing national wealth in a new light. In such a society, which of the many prevalent relationships and categories will tend to be *selected* by the economists as relevant to the problem of increasing national wealth, and what will be the main characteristics of the theoretical system which is built up ?

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[1] *Critique of Political Economy* (Kerr edn.), pp. 69–70.

In the first place, it is clear that the relationships and categories selected will not necessarily be identical with those which we regard as significant in connection with our own particular economic problems today. In our imaginary society, for example, the relation between capitalist and worker may well be abstracted from. The social relations which will be likely to appear most relevant to the problem of increasing national wealth are those between the cultivators of the soil (including the agricultural capitalists), the landlords, and those employed in manufacture. The first class *produces* the agricultural surplus ; the second class *receives* the surplus in the form of rent ; and the third class *exchanges* its products with the landlords in return for a share in the surplus. Then again, the category " profit ", in the sense in which it is understood today, may not be recognised as significant outside agriculture, for the simple reason that it does not yet exist *as a norm* in any other sphere of production. It is only in agriculture that capitalists normally receive an income which after deducting the cost of labour and materials bears a fairly regular relationship to the amount of capital employed. In manufacture, " profit " in the sense of a rate per cent. normally received on capital will be more or less unknown, although manufacturers may occasionally receive substantial windfalls. Under such circumstances, the farmer's

" profit " and the manufacturer's " profit " may be regarded, not as two different species of the same genus, but as two entirely separate categories of income which require separate analytical treatment. And finally, since profit has not yet emerged as a distinct and universal category of income, it will be *rent* which assumes the key position in the economy. Attention will be drawn to rent for two main reasons—first, because it is the only category of income of which part may *regularly* be spared for purposes of accumulation, and, second, because it either comprises or represents the agricultural surplus, which consists of commodities primary in the scale of wants and therefore effectively limits the extension of manufacture and commerce.

In the second place, the theoretical treatment of the problems of value and distribution in such a society is likely to be very different from our own approach to these problems. In fact the problems themselves may be viewed in a fundamentally different manner. In the field of value, since the whole emphasis will be laid on the relation between *cost* and *surplus*, a basic distinction will probably be drawn between " real value " and " exchange value ". The " real value " of a commodity is constituted by its paid-out costs of production : for example, the " real value " of a manufactured commodity may be conceived in terms of the agricultural produce (in the form of food and raw materials) which has been physically used up in order to make it. The " exchange value " of a commodity, on the other hand, is simply the price received for it on the market—a price which varies according to fluctuations in supply and demand but tends under competitive conditions to settle at a relatively invariable level. There is no necessary tendency for commodities to sell *at* their " real value " : in fact it is obvious that unless their " exchange value " is *above* their " real value " no surplus over cost will be realised. This approach to the problem is radically different from that adopted by Smith and Ricardo, in whose work an entirely new concept of " exchange value " appears. In the field of distribution, the approach is likely to be even more alien to our own. It is hardly too much to say that there will be no such thing as ~~a~~ " theory of distribution " in the modern sense. As Patten has remarked, there can be no proper theory of distribution until some portion of the social surplus is undetermined.[1] In our imaginary society, the incomes of everybody except the landlords are at the subsistence level, and the social surplus, which is identified with the agricultural surplus, takes the form of rent alone. Under such circumstances, the question of the determination of the proportions in which the annual produce is divided between the social classes is not likely to appear either interesting or relevant. An account of the *process of circulation* may well take the place of a theory of distribution proper. It is not until profit has emerged as a normal and important category of income that the question of a theory of distribution is placed on the agenda for discussion. In the meantime, " profit " can be dealt with either by assuming that it is not a *net* income at all, or by treating it as an exceptional type of income which is paid out of the pocket of the purchaser. The " profit " received by the agricultural capitalist may possibly be regarded as being in the nature of a compensation for accidents and the cost of repairs ; and the " profit " of the manufacturing capitalist may be regarded either as a sort of superior wage, or as an extra slice of the agricultural surplus which he is able (through his astuteness or monopolistic practices) to extort from the landlord by selling commodities to him at a price greater than their " real value ".

This way of looking at the economy—which was, of course, essentially that of the Physiocrats—was eventually rendered implausible by what Richard Jones called " the introduction of capitalists ". To the extent that capitalist methods spread throughout all spheres of production, and profits at a more or less regular rate per cent. came to be earned on capital in all its employments, the ideas we have been considering began to seem less and less adequate. But the Physiocratic theoretical structure was remarkably resilient, and up to a point could be suitably adapted to meet these changes. Turgot, for example, was able to make an advanced analysis of the equilibrium which establishes itself between the different employments of capital, while still clinging to the basic tenets of Physiocracy. Baudeau, again, was able to admit without any apparent embarrassment that the farmer's income included a payment for risk-bearing and for undertaking the cares of management, over and above the compensation for accidents and the cost of repairs which Quesnay had postulated as the sole constituents of "interest" on agricultural capital. Mercier's development of the concept of *prix nécessaire*, or supply price, was a brave attempt to bring the Physiocratic theory of value up to date. And in the work of all the later Physiocrats, notably Du Pont, ingenious efforts were made to reaffirm the concept of the exclusive (or at least the superior) "productivity" of agriculture while discarding or watering down the concept of the "sterility" of manufacture and commerce.

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[1] S. N. Patten, " The Interpretation of Ricardo " (*Quarterly Journal of Economics*, April, 1893), *passim*.

This Physiocratic structure—suitably amended to accord with contemporary changes in economic organisation—was always lurking at the back of the minds of the early under-consumptionists. It appealed to them for reasons which were largely political. On the one hand, it appealed to them because the Physiocratic realm represented a fairly close approximation to the type of economy which they most admired. Malthus, Spence and Chalmers were quite prepared to enter into some sort of compromise with the parvenu capitalist class, but they always hankered after a society in which the landlords would once again assume their rightful place as economic and political leaders of the community. Sismondi would have no truck with landlords: he was anxious to retreat even further back in history to the system of patriarchal cultivation; but the economy which he eulogised was at least one in which agriculture was predominant and manufacture definitely subsidiary.[1] On the other hand, the Physiocratic structure appealed to them because certain elements of it could be used to bolster up their general critique of capitalism. All of them believed that the unrestricted investment of capital, particularly in manufacture, would inevitably cause (and in fact already had caused) violent dislocations in the economy. And there were at least three ways in which basic elements of the Physiocratic structure could be used to give theoretical backing to this belief. First, the Physiocratic pattern of demand, with its emphasis on the purchase of manufactured goods by the landlord class, could be used to suggest that the prosperity of the community was largely dependent upon the continued and increasing expenditure of that class, and that if the landlords accumulated their income instead of spending it on personal consumption serious maladjustments would be brought about. Second, the Physiocratic account of value and profit could be used to draw attention in a more general manner to the idea that profit on capital was essentially dependent upon the effective demand of those who bought the commodities which the capital was employed to produce. Third, the Physiocratic idea of a natural balance between agriculture on the one hand and manufacture and commerce on the other could be used to provide a broad background for the study of economic dislocations. For these reasons, then, the approach of the early under-consumptionists was strongly influenced by their conscious or unconscious adoption of certain Physiocratic ideas. With Sismondi and Malthus we are sometimes in the Physiocratic and sometimes in the Ricardian realm. With Spence and Chalmers we are in the Physiocratic realm for almost the whole time.[1]

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[1] Rist has drawn attention to the fact that Sismondi sometimes "reasons as if the nation were composed of agriculturists who buy the manufactured goods they need with the revenue received from the sale of the present year's crop". See Gide and Rist, *A History of Economic Doctrines* (2nd English edn.), p. 190.

Eventually, as I have said, the march of economic events renders this view of the economy implausible, even to those for whom it possesses political attractions. One simple but vastly important phenomenon impresses itself more and more on men's minds as capitalist competition develops in all spheres of production: all commodities which are produced for sale, irrespective of their physical attributes, normally tend to sell at a price which is sufficient not only to cover paid-out costs but also to provide a profit proportioned to the amount of capital employed. It was a consideration of this phenomenon—and certain associated phenomena such as the changes in the source of accumulation and the pattern of demand, and the growth of international trade and factor mobility—which stimulated the construction of a new theoretical system.

The differences between the new system and the Physiocratic system were considerable. The relation between capitalist and worker was no longer abstracted from, but placed at the very foundation of the analysis. Agricultural and manufacturing profits were clearly recognised as two different species of the same genus. Profit, rather than rent, assumed the key position in the economy, and the social surplus was conceived as consisting not of rent alone but of rent and profits. In the field of value, "exchange value" was identified with equilibrium price and equated to cost of production including profits, and it was assumed that market price oscillated around "exchange value" according to fluctuations in supply and demand. In the field of distribution, since the social surplus was now conceived to consist of both rent and profits, the question of its apportionment between the landlords and the capitalists for the first time began to assume importance and interest.

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[1] Spence and Chalmers quite consciously made further amendments to the Physiocratic framework in an attempt to bring it more into consonance with the new economic environment. Spence, for example, admitted that the farmer usually shared in the *produit net*. Chalmers introduced his new class of "secondary" producers, and tried to adapt the basic model so that it could be applied to a country which was partly dependent upon overseas trade.

There were three special aspects of the new system which brought it sharply into conflict with the early theories of under-consumption. First, it assumed "that those commodities only will be produced which will be suited to the wants and tastes of mankind, because none other will be demanded".[1] Since any lack of balance between supply and demand would be swiftly rectified per medium of the price mechanism, it was assumed that demand was merely a *condition* of production and therefore irrelevant to the problem of exchange value.[2] Second, as a necessary consequence, it made abstraction of the physical attributes of commodities. There no longer appeared to be any logical reason for laying emphasis on the physical distinctions between, say, agricultural produce and manufactured goods, and many of the examples imagined by the under-consumptionists of a dislocation of the balance between agriculture and manufacture began to appear as irrelevant. Third, profit was regarded as an income which *originated* in the process of production and was merely *realised* in the process of exchange. It followed that any explanation of profit conducted mainly in terms of supply and demand was bound to appear empty and superficial.

It is easy enough to criticise the assumptions upon which the new system was founded, and to assert that they begged the whole question of under-consumption. But under-consumption was a new phenomenon taking place in a new type of economy, and the general tendencies and features of that economy had to be summed up and generalised theoretically before the nature and causes of dislocations within it could be adequately studied. Ricardo and his disciples did not themselves make such a study, since for reasons which were primarily political they accepted Say's Law. But the example of Marx shows clearly enough that it was at least *possible* to make a profound analysis of under-consumption while at the same time accepting the greater part of the Ricardian economic framework. And if our study of the early under-consumptionists has shown anything it is this—that the theoretical apparatus which they used was hopelessly inadequate to the task which they set out to perform.

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[1] *Letters to Malthus*, p. 49.

[2] *Ibid.*, pp. 148–9. This conclusion was also dependent upon the further assumption of constant returns.

The early under-consumptionists failed, I believe, not only because their political opinions were reactionary but also because their economic theory was, in the widest sense, *out of date*.[1] It is a mistake to look upon the controversy, as so many have done, merely as a struggle between a " right " side and a " wrong " side, or merely as a political squabble disguised as an ideological one. Logic and politics certainly played an important part in determining the position of each individual economist, but the controversy was in essence a part of the wider struggle to establish a new set of theoretical principles which would more closely correspond to the social structure of the time. It provided, in fact, the major field in which this wider struggle was fought out. To say this is not, of course, to say that the *conclusions* of the under-consumptionists were necessarily wrong. To put the label " Physiocratic " on the foundations of their theory is merely to determine their place in the history of economic thought: it is not to dispose of them.

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[1] Patten, *op. cit.*, has analysed certain aspects of the Ricardo-Malthus controversy in a manner which bears some resemblance to this. See also J. H. Hollander, introduction to *Notes on Malthus*, pp. xxiii-iv. Possibly a further illustration of our ever-present tendency to analyse a new form of social organisation in terms of concepts which are more appropriate to an older form is provided by the modern theory of the allocation of resources under socialism.

The Distribution of Incomes and the Burden of Estate Duties in the United Kingdom

By E. C. Rhodes

The surtax statistics given annually in the Reports of the Commissioners of Inland Revenue over a number of years enable us to make comparisons between the distribution of incomes in the higher ranges. Comparable statistics are available from 1920–21, as the lower limit has been £2,000 since that year. Previously, for 1910–11 the lower limit was £5,000, from 1914–15 it was £3,000, and from 1918–19 it was £2,500. Income statistics for ranges below £2,000 are not available over a long period of time.

Our interest, at the moment, lies in the variations within these groups of incomes. Are these incomes, year by year, conforming to the same pattern in this respect? Or is there more or less variability now than there was formerly? It is possible to extract from the data for each year a single figure which serves as an index of the variation within the group, and by comparing such indices over a number of years we can find answers to our questions.

A difficulty is encountered at the outset due to the changing numbers of incomes liable to surtax. Table I shows these figures.

TABLE I

NUMBER OF SURTAX INCOMES, EXCEEDING £2,000

Year	1920–21	1921–22	1922–23	1923–24	1924–25
Numbers	79,579	92,258	90,125	93,133	95,296
Year	1925–26	1926–27	1927–28	1928–29	1929–30
Numbers	98,030	99,729	100,501	107,400	108,891
Year	1930–31	1931–32	1932–33	1933–34	1934–35
Numbers	104,321	94,087	87,306	84,728	88,999
Year	1935–36	1936–37	1937–38	1938–39	1939–40
Numbers	92,852	100,317	106,806	104,799	103,016
Year	1940–41	1941–42	1942–43	1943–44	1944–45
Numbers	103,279	110,767	122,778	133,318	143,970

Since 1920–21, the number of incomes exceeding £2,000 has shown considerable changes, increasing to 108,891 in 1929–30, declining to 84,728 in 1933–34, and subsequently rising to 143,970 in 1944–45. Our data stop at the year 1944–45 as the figures for subsequent years will not be available in their final form until later Inland Revenue Reports are published. In the 93rd Inland Revenue Report the number of surtax incomes is shown as 168,718 for 1948–49, more than double the number in 1920–21, and this figure is likely to be revised in succeeding Reports, if past experience is a good guide. When we relate present-day income distributions in these higher ranges with those of 20 to 30 years ago we realise that, with the change in conditions, we are not really comparing like with like. If we wished to compare those incomes exceeding £2,000 now with a similar group of 30 years ago we ought to compare them with a group of incomes exceeding £1,000 or some such figure. Since 1920 there have been considerable changes in the value of the £ and these changes have been accompanied by changes in incomes received for doing the same job. It was felt preferable to compare the income distributions of the 79,579 highest incomes each year, this figure being the number of surtax incomes in 1920–21. Thus, instead of fixing £2,000 as the lowest income, we fix the number of incomes to be compared.

The index of variation which was referred to above is obtained by considering the positive differences between every pair of incomes in the group and averaging these differences. This measure is called the mean difference. Thus each income is considered in relation to all those incomes greater than itself. In order to reduce this measure to a form suitable for comparison with other similar measures it is expressed as a proportion to the mean income of the whole group, the mean income being obtained by dividing the aggregate income of the group by the number in it. This relative mean difference is the index which is used for comparative purposes. Table II shows these indices of variation, together with the estimated lowest income in each group with 79,579 incomes each year. There is also given the estimated mean income of each group of incomes. As a matter of interest, the relative mean differences for the whole group of surtax incomes are also shown for each year.

TABLE II

LOWEST INCOMES (x_0), MEAN INCOMES ($\bar{x}$), RELATIVE MEAN DIFFERENCE (*D*) AND RELATIVE MEAN DIFFERENCE FOR ALL SURTAX INCOMES, EXCEEDING £2,000 (*D′*)

	x_0(£)	$\bar{x}$(£)	*D*	*D′*
1920–21	2,000	6,560	·947	·947
1921–22	2,170	6,820	·922	·935
1922–23	2,260	6,210	·887	·896
1923–24	2,310	6,390	·887	·897
1924–25	2,340	6,460	·885	·887
1925–26	2,390	6,530	·872	·881
1926–27	2,410	6,500	·864	·870
1927–28	2,420	6,420	·854	·873
1928–29	2,580	6,670	·851	·861
1929–30	2,600	6,620	·839	·836
1930–31	2,450	6,170	·817	·805
1931–32	2,290	5,510	·796	·790
1932–33	2,180	5,150	·786	·788
1933–34	2,140	5,050	·785	·805
1934–35	2,210	5,250	·795	·834
1935–36	2,250	5,420	·813	·811
1936–37	2,380	5,790	·796	·820
1937–38	2,470	6,090	·800	·807
1938–39	2,430	5,890	·790	·808
1939–40	2,410	5,820	·791	·790
1940–41	2,410	5,730	·772	·763
1941–42	2,490	5,710	·744	·764
1942–43	2,620	5,750	·723	·741
1943–44	2,720	5,860	·703	·724
1944–45	2,820	5,950	·723	·723

We can see from this table how the change in total number of surtax incomes with the years alters the lowest income corresponding to 79,579 incomes. In 1929–30, this figure was £2,600; in 1933–34 it was £2,140, and in 1944–45, £2,820. The mean income of 79,579 incomes each year was £6,560 in 1920–21, it was £6,620 in 1929–30, £5,050 in 1933–34, £6,090 in 1937–38 and £5,950 in 1944–45. The indices of variation, relative mean differences, for the whole group of surtax incomes is shown as *D′* in Table II, and over the years under review they have tended to decline. The figures, *D*, which we prefer to use, because they relate to more comparable groups of incomes, follow the same general course as the figures D′; over the period considered they have declined. This decline is not steady. In 1933–34 the figure was .785. In the following year it rose to .795, then in 1935–36 it was .813, a year later it was .796, then it rose again to .800. In the 25 years between 1920 and 1945 the relative mean difference of the incomes of the more well-to-do has declined from ·947 to ·723, a drop of about 24 per cent. In this period the relative variation in the group has become considerably lower, these incomes are now much less unequally distributed than at the earlier date. As an extreme instance of this change we may cite these figures; in 1920–21 there were 177 incomes of more than £100,000, in 1944–45 there were 52 such large incomes.

One reason for the decline in the variability of higher incomes is the incidence of death duties. It may be argued that an increase in taxation of estates passing at death will mean less capital gain to a beneficiary with a subsequent loss of investment income, or a loss of earned income if the capital is used to finance an enterprise in which the recipient is interested as a worker. One way of showing in comparative form the burden of estate duties is to present the tables given in the Inland Revenue Reports year by year showing the Rates of Duty for the various categories of values of estates. It is difficult to get from such a table a simple picture of the changes which have taken place over a number of years. It seems reasonable to think that it would be better if we could obtain a single index for each year, this index being, in essence, an average figure of the burden of taxation at each level of value of estate. This index would be a weighted average because the different values of estates would be of different relative importance, depending on the numbers of estates of different sizes. This kind of index can be computed from the published data. In the Inland Revenue Reports we are given tables showing the net capital values of estates for each year at different levels of value. We are also given the net receipt of estate duty, also at the different levels of value of estates. For our purposes it was decided arbitrarily to consider only estates of net value £10,000 or more. As we have been concerned with incomes in the higher ranges (£2,000 and over), it was felt that we were not interested in the total value of all estates including what are described in the Reports as "Small Estates", and it was felt that we should restrict ourselves to "larger estates". The difficulty was to decide at what level to fix what we were thinking of as "larger estates". In the end, this figure was taken at £10,000 quite arbitrarily.

Thus, for each year we can extract figures showing the total value of estates of £10,000 or more and figures showing the total net receipt of estate duty on such estates. The ratio of these gives us our index of the burden of estate duties. It therefore gives us an average of the rates at the various levels of values of estates. Table III shows these figures from 1920–21.

TABLE III
VALUE OF ESTATES EXCEEDING £10,000; NET RECEIPT OF DUTY ON THESE ESTATES AND THE RATIO, RECEIPT TO ESTATE

	Estates (£mn.)	*Net Receipt (£mn.)*	*Ratio (E)*
1920–21	253·8	36·9	·145
1921–22	270·3	41·1	·152
1922–23	295·9	44·4	·150
1923–24	305·0	45·7	·150
1924–25	315·5	46·2	·146
1925–26	309·3	48·5	·157
1926–27	316·6	54·6	·173
1927–28	350·0	63·8	·182
1928–29	365·5	67·5	·185
1929–30	366·3	64·4	·176
1930–31	356·7	69·0	·193
1931–32	296·6	51·0	·172
1932–33	335·3	62·0	·185
1933–34	347·7	70·3	·202
1934–35	354·1	66·2	·187
1935–36	386·1	72·7	·188
1936–37	397·2	71·2	·179
1937–38	394·8	72·6	·184
1938–39	354·2	60·6	·171
1939–40	331·6	61·9	·187
1940–41	323·7	65·8	·203
1941–42	352·6	75·0	·213

Unfortunately, in the later war years the information in the Reports does not enable us to complete this table for years after 1941–42; we can continue the table from 1946–47, but as our comparable data respecting incomes cease at 1944–45, not much is lost.

If we assume that we can take the ratios (*E*) as indicative of the burden of estate duties, we can say that this burden has been increasing since 1920–21. The increase has not been regular year by year. If we wish to compare the annual burden of estate duties with the variability amongst higher incomes we encounter a difficulty due to the estimated lapse of time between the realisation of an estate and its influence on income. Some time does elapse between a person's dying and another person receiving his part of the estate. In the case of a trust where income passes to a beneficiary, the lapse of time may be nil; where a capital sum is passed and before this is invested for unearned income there will probably be some time interval; when a capital sum is passed and this is used for the purchase of workshop equipment or a professional practice there will also probably be some lapse of time. How long an interval should be allowed is a matter of argument. In what follows we have compared the ratios (E) for one year with the indices of variability of incomes for the succeeding year, thus we have allowed for a year's interval between the passing of an estate and its influence on the distribution of incomes.

Fig. 1 shows in diagrammatic form the two series E, the burden of estate duties and D, the index of relative variability of higher incomes for the years from 1920–21. E shows more fluctuation than D. If we link the two series with a year's lag, i.e., taking the E figure for 1920–21 with the D figure for 1921–22, and so on, we can express the connection between them in the form $D = 1{\cdot}228 - 2{\cdot}308\,E$, thus when E is ·150, D is ·882 (in 1922–23 and 1923–24, E is ·150, the values of D in Table II for 1923–24 and 1924–25 are ·897 and ·887). For the year 1946–47, we can estimate E at ·273, the corresponding value of D from the formula is ·598. From the preliminary figures of surtax incomes in 1947–48 given in the 93rd Report we estimate D provisionally as ·638. If we venture to extend this formula on the assumption that it would hold good under conditions different from those obtaining in the period from 1920–21 to date, we can say that $D = 0$ when E is ·53. Thus, when the net receipt from estate duty is about half the total value of estates over £10,000, the variability amongst the higher income group disappears, i.e., these incomes are all of the same amount. But this argument should be regarded mainly as an arithmetical exercise. The fact is that we have observed a connection between E and D which appears to be substantial, but the whole of the change in D over the years is not accounted for by the change in E. Of the variance of D, 77 per cent. appears to be attributable to the change in E, the remaining 23 per cent. is unaccounted for. It would be interesting to get a series of figures similar to the E's indicative of the burden of direct taxation on higher incomes. We should like to know the total amount of incomes above a certain limit, e.g., £5,000, and the net receipt of income tax and surtax from these incomes year by year. Unfortunately the data in the Reports do not enable us to extract such details. If we were thus able to get indicators of the burden of direct taxation we could relate these figures to those indicating the relative variability amongst the higher income groups. It seems reasonable to suppose that these would be connected.

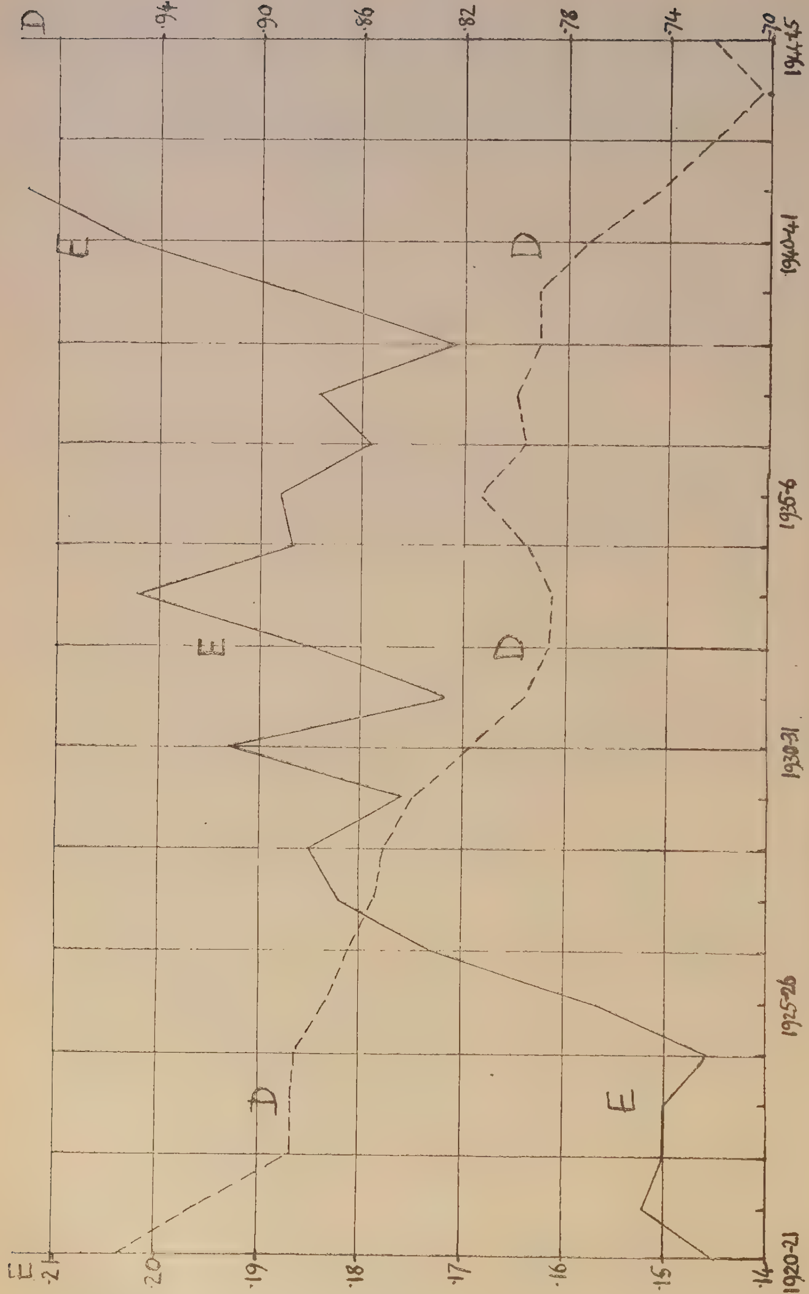

Fig. 1. E, Burden of Estate Duties. D, Relative Variability of Incomes.

We can argue that a person with a large income, living well within the limits of this income, would invest his savings annually and produce a higher investment income, or use his savings to assist him to earn a higher income from his employment. We can imagine that this person submitting to a greater burden of direct taxation would be prevented in this way from increasing his income, and see the possibility of the variability of the higher income group declining with such an increase of direct taxation.

SUMMARY

Since 1920–21 the index of relative variability of higher incomes has declined. There is now less inequality amongst such incomes than formerly. In the same period, the burden of estate duties has become greater. When these two facts are linked we find it possible to express in a simple formula the connection between relative variability amongst higher incomes and the burden of estate duties and this appears to show that a large part of the change in the variability is accounted for by the change in the burden of estate duties.

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Transport for Eighteenth Century Ironworks

By R. A. Lewis

In the early eighteenth century iron manufacturers had to overcome the difficulty of providing transport to and from their works. Where there were no navigable rivers the difficulty lay not so much in bad roads as in few carriers. Public carriers did exist: an Act of 1691 enabled J.P.'s in every county to license them and to fix the rates which they charged. Much has been written about these public carriers but none of the historians of transportation has paid any serious attention to a more numerous group—the crickers and husbandmen-hauliers. A large amount of transport was needed to carry iron to and from the ironworks and also to bring in charcoal from scattered coppices which were often not to be reached except by tracks fit only for pack-animals.

A pointer to a solution is to be found in the way in which a private individual tackled the same problem on a much smaller scale. Thomas Clewes, an eighteenth-century blacksmith at Kinver, owned no horses and therefore hired a neighbour Sam Browne to plough and harrow his land. Browne also did any odd hauling required, whether it was carrying muck for the fields or bar iron for the smithy. There was in fact a large number of these petty carriers, ranging from the husbandman who did a little hauling in his spare time to the cricker who used his land almost wholly to provide fodder for his horses.

Very often tenants were forced to perform a certain amount of hauling by the conditions of their leases. Such leases were, of course, the result of agreements between the landowner and the ironmaster to the advantage of both parties.

This is clearly shown in the assignment by Frances Jewkes to Edward Knight of the lease of Wolverley Forge (May 1731) which includes certain conditions relating to carrying for the forge. Frances agreed that for ten years the carriage of pig-iron to, and of bars from, the forge should be done by the tenants of her farms at Wolverley who were to work at the usual rates and prices and to have available suitable carriages. If any refused and Edward Knight had to employ others at a higher rate, then she was to be responsible for any such additional cost. This certain secondary source of income was an advantage in letting the farms, especially as Knight promised to reckon with the carriers every quarter and to pay the reckoning within one month.

The same Edward Knight, partnered first by his brother Ralph and later by his sons James and John, held an iron forge and furnace at Bringewood near Ludlow and also leased a considerable area round these works. The rents of the farms in this area, while given a fixed money value, were actually paid in kind or rather in carriage. The obligation to carry was apparently strictly defined, for some items were paid in cash even when there was a deficit in the amount of carriage charged against the rent.

Some of the tenants, the crickers, used their land almost wholly as grazing for their horses. In 1738 one of these, William Foxall of Hurlpike, absconded owing two years rent. His farm was carried on for a few months by Ralph Knight. During this time the expenditure on farming was £5 1s. 10d. and on the horses £11 2s. 3½d., the income being £21 10s. 8¼d. wholly earned by the horses. The small profit, £5 6s. 6¾d. less rent, perhaps explains why Foxall was in debt.

The Knights also worked a furnace at Charlcot in the Clee Hills: there a large part of the carrying was provided from Charlcot Farm which, in 1746, was leased to George Haycox, husbandman. In the four years 1746–50 he received £593 10s. 5½d. for carriage—an average of nearly £150 a year. This was made up as follows:

Carrying charcoal to Charlcot	£312	6	1¼
Carrying ironstone to Charlcot	11	2	1¼
Carrying pig-iron from Charlcot to Bridgnorth	200	10	0
Carrying forge cinders to Charlcot from Bridgnorth	53	13	0
Carrying sand to Charlcot		5	3
Carrying pig-iron to various places ..	15	14	0

Eighteenth-century ironmasters tended to extend the scope of their business so as to include those operations subsidiary to the manufacture of iron. It is not therefore surprising that a number of ironmasters did their own carrying.

Cricking farms were run in conjunction with ironworks by the Darbys at Coalbrookdale, the Crowleys at Winlaton and the Knights at Bringewood.

The latter farm, known as Deepwood, was leased by Edward and Ralph Knight in 1742 at the same time as their ironworks were being extended. They planted new hedges and repaired old ones, bought a stock of 31 horses and pack-saddles at a cost of £153 13s. 0½d., and performed a large part of their carrying themselves. A little ploughing and sowing was done to provide fodder for the horses in winter but the horses' earnings were the only source of income. Three crickers were hired to manage the 31 horses. Each animal earned about £6 a year, the crickers being paid between a quarter and a fifth of the value of the carrying performed. The farm did not prosper. Each year there was a deficit of some £50. This may have been due to disease among the horses, since charges for bleeding them are mentioned in the accounts. Whatever the cause, the stock fell in value from £263 in 1745 to £142 in 1752.

In 1754 the farm was extended. At the same time draught horses, bigger, heavier, and more valuable than the small cricking horses, were introduced. At Ladyday 1756 the stock included six draught horses at £8, four saddle horses at £7 10s., and 39 cricking horses at £5. The cricking horses with their pack-saddles continued to carry the bulk of the charcoal since many of the coppices could not be reached by waggons. It is interesting to note that the formation of a Turnpike Trust for the improvement of the roads round Ludlow took place two years after the change at Deepwood and that the first leasee of the tolls was Edward Knight. An inventory of Bringewood in 1771 includes four waggons, a timber carriage, a charcoal waggon body and three trolley bodies.

II

The various ways in which an ironworks received supplies of iron and fuel can best be analysed by studying in detail the carrying performed for one or two works over a short period. The basis for such a study is provided by the Forge Payment Book for Cookley and Wolverley Forges from July 1763 to December 1766. These two Worcestershire forges, each producing some 300 tons of bar iron annually, were situated on the River Stour within five miles of Bewdley which was then the port of the Black Country and also the principal iron market in the Midlands. For the last six months the Forge Payment Book includes details of another forge at Whittington a few miles upstream from both Wolverley and Cookley. All three forges were worked by The Stour Partnership consisting of Abraham Spooner and his brother-in-law Edward Knight.

The Book contains details of the carriage of coal, pig-iron and charcoal to the forges. In all 55 carriers are named, of whom 10 appear once, and another six only twice. Not all of the remainder were working at the same time: 45 are named as working for Wolverley Forge and of these only 24 are mentioned in 1763 and the same number in 1766. At Cookley out of a total of 44, 22 are named in 1763 and 18 in 1766, while at Whittington during the six months covered only 11 different names occur. Thus at any one forge rather less than 25 carriers were being employed at the same time.

The carriers were paid quarterly but this is masked in the accounts since payments on account were often made and only the balance remaining was paid at the end of the quarter. Special jobs were paid separately. For example, John Wheeler is mentioned twelve times, nine times on quarter days and the remaining three when he was employed to carry timber from Mitton.

The sum paid out at the forges averaged £237 in a year. This was unevenly distributed, the average sum spent during the quarter ending at Ladyday being £40 and for the other quarters £56, £83 and £58 in that order. If the quarters are further split up into months the average figures are:

Jan.	19/6	Apr.	18/-	July	156/6	Oct.	207/6
Feb.	13/-	May	59/6	Aug.	362/-	Nov.	72/6
Mar.	41/6	June	123/6	Sep.	93/6	Dec.	86/-

These figures are only of relative value since the sums accumulated and paid off on quarter days have been omitted, but they do show that carrying was done principally in summer and autumn when the roads offered a firmer surface. The demands of harvesting reduced the amount in September.

Some of the carriers were farmers who did an odd day's carrying now and again. These generally earned only small sums, and, since they did not depend on these for their livelihood, they were paid at the end of the quarter and rarely drew money on account. Typical of these was Samuel Jones, a carrier for Wolverley Forge. At Christmas 1763 he was paid 6s. 6d. but is not mentioned again until nine months later when he received the same sum. For men like this carrying was a very subsidiary occupation: there were long periods when farming took up all their time to the exclusion of carrying. Some small carriers were more regular. Thomas Wheeler, a Wolverley Farmer who lived near the forge, carried in nine out of thirteen quarters, while Samuel Morris missed only one quarter during the same period.

The rate for carrying pig-iron from Bewdley to Wolverley was 3s. 3d. per ton and to Cookley 3s. 9d. per ton. The fact that the sums earned by these carriers nearly always divide by either 3s. 3d. or 3s. 9d. seems to indicate that they carried only from Bewdley. Many of them were tenants of Lord Foley in Kidderminster Foreign, which included Wribbenhall where much of the iron was unloaded. Some are recorded in the Wribbenhall Parish Registers which are unfortunately incomplete at this time. Others are proved to have held land in this part of Kidderminster Foreign by the Kidderminster Enclosure Award ten years later. These carriers can be described generally as husbandmen who used their horses and carts to haul pig-iron from the Severn to the forges.

Another distinguishable group is the charcoal carriers. Frequently they used not carts but light cricking horses kept specially for this purpose. As might be expected their earnings were larger than those of the previous group and the carriers were dependent on them for a larger proportion of their income. Having little capital they needed to draw money on account before the end of the quarter.

The book gives no details of how these sums were earned but, from the frequency with which the items are coupled with other items such as "turnpike for charcoals", it is probable that the greater part of these sums was payment for carrying charcoal.

Only in two cases are the quarterly payments to a carrier given in detail: both relate to Humphrey Russell at Cookley Forge.

Russell is exceptional, not being typical either of the previous group or of another which has equally distinct characteristics. This consisted of men who transported only coal and did so over a definite route between one colliery and one or two forges. Their capital was sufficiently large to enable them to pay their expenses until the end of a quarter without drawing money on account. There is some evidence that these carriers might almost be described as being under contract. One of them, Peter Hill, ceased carrying for Cookley in 1764 and paid £2 2s. This may be regarded either as the return of a hiring fee or perhaps as a fine for the breaking of an agreement.

These carriers rarely carried anything except coal and, when they did so, such work was paid for separately. Humphrey Russell may be regarded as an example of this but a better instance is the separate entry and payment made (in August 1766) when Thomas Lewis carried 500 bricks to Wolverley, and again three months later, when he fetched a load of clay.

The coal for both Cookley and Wolverley was supplied by Mrs. Northall of Studley Gate. This was all carried to Cookley by Humphrey Russell and to Wolverley by either Thomas Lewis or James Burton. When coal was needed from other collieries it was carried by other carriers. House coals for the workmen at the forges were supplied separately. A very few small carriers are found carrying a load of coal from Studley Gate on rare occasions. The following is typical:

Wolverley Michaelmas 1765	T. Lewis	15 loads from Mrs. Northall and 9t. 2cwt. housecoals
	J. Burton	17 loads from Mrs. Northall and 2t. 9cwt. housecoals
	T. Wheeler	1 load from Mrs. Northall

All these carriers lived near the forges. The two principal coal carriers for Cookley, Russell and Burton, both received annual payments for forge damage. It is perhaps some indication of the size of their holdings that out of 121s. paid out annually to seven persons (excluding the lord of the manor) Burton got 50s. and Russell 20s. Russell was also a tenant of the Knights for some of the lands that went with Cookley Forge.

The groups distinguished above were not rigidly separated from each other. There are carriers who have equally good claims for inclusion in more than one group but these are the exception. Forge transport had become an organised system in which each group of carriers had its own niche. Further development was curtailed by the opening in 1770 of the Staffordshire-Worcestershire Canal which passed close to all the Stour forges. Barges provided cheaper transport of coal and pig-iron to the forges. Only the charcoal carriers remained active and they became redundant later in the century as a result of the technical changes by which coal replaced charcoal in the ironworks.

Crickers and husbandmen-hauliers existed not only in the area which has been considered but almost everywhere where there was considerable short-distance land carrying to be done. Willan in " River Navigation in England " (1936) cites a number of occasions on which such men opposed river improvements because land carriage alone enabled them to pay their rents. These carriers may not be important in the general development of transport but in considering the organisation of the eighteenth century iron industry their existence cannot be forgotten.[1]

Kidderminster.

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[1] This article is based on research which formed part of the work for my unpublished M.A. thesis " Two Partnerships of the Knights " (Birmingham University, Dec. 1949). The manuscript sources are all included among the Knight MSS. now deposited in Kidderminster Public Library. The accession numbers of the more important sources are: Agreement between Jewkes and Knight (1731)—7142; Details of the Farms at Deepwood, Charlcot, etc. are included in 244–68; The Forge Payment Book—243.

Decreasing Costs and the Gains from Trade

By E. COEN

Current theory concerning a possible loss from trade in a two-country, two-commodity model, with one decreasing cost industry, can be summarised as follows :

(1) One country may lose from trade if the relative prices of its two products differ from their relative marginal costs.[1]

(2) One country may lose from trade where price equals marginal cost, but where the absence of trade causes a greater upward shift of the production possibility curve than would trade.[2]

(3) But neither country can lose from trade where price equals marginal cost and the production curve never shifts.[3]

Since these rules also hold if both industries have constant or increasing costs, decreasing cost seems to produce no peculiar effect. This note suggests, however, that rule no. 3 is valid only as a special case.[4]

1. ASSUMPTIONS

We assume two countries, A and B ; two commodities, watches and wheat ; and fixed quantities of two factors of production, labour and capital. We define a " decreasing cost " industry as one which yields increasing physical returns to scale.

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[1] J. Viner, *Studies in the Theory of International Trade* (New York, 1937), pp. 480–2. J. Tinbergen, *International Economic Cooperation* (Amsterdam, 1945), Appendix I, pp. 193–5. G. Haberler, " Some Problems in the Pure Theory of International Trade ", *Economic Journal*, June 1950, pp. 235–7.

[2] Haberler, *op. cit.*, pp. 238–40.

[3] Viner, *op. cit.*, pp. 475–80. Tinbergen, *op. cit.*, pp. 182–93, 195–9, and see footnote 1, p. 290.

[4] I wish to acknowledge an anticipation of the main argument of this note by R. C. O. Matthews, whose article, " Reciprocal Demand and Increasing Returns " (*Review of Economic Studies*, 1949–50, Vol. XVII (2), No. 43), has been brought to my attention since writing.

Constant returns to scale prevail in wheat production, and increasing returns to scale in watch production.[1] In the wheat industry there is perfect competition. In the watch industry there are many firms and the supply of labour or capital to any firm is perfectly elastic. Some of these firms may be "competitive": they operate in long-run equilibrium at the output where increasing marginal cost equals minimum average cost. The rest of the firms in the watch industry are "monopolistic": at all outputs marginal cost (long-run) is less than average cost (long-run). Each "monopolist" specialises in the production of a different watch component.[2] Each "monopolist" has agreed to sell his product at its marginal cost in return for a government subsidy equal to the excess of average over marginal cost. After payment of the subsidy we assume private and social cost to be everywhere equated. Given these assumptions, the prices of watches and wheat will equal their relative marginal costs.[3]

We assume further that the ratio of total capital to total labour engaged in watch production is always greater than the corresponding ratio in wheat production, whatever the prevailing ratio of factor prices, and that in both industries the marginal physical product of any input diminishes as that input is increased relatively to the other input. These premises imply a production possibility curve that is convex (from above), if both industries yield constant returns to scale.[4] Very mildly increasing returns to scale in one industry leave the production curve still convex. But if the rate of increasing return is large enough, then either a part, or the whole, of the production curve becomes concave. We assume a partially concave curve.[1]

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[1] The production functions considered here are those not of firms but of the industries; and by "scale" is meant the quantity of labour and capital employed by an industry. All labour or capital inputs consist of uniform physical units. This is artificial in that increasing returns to scale usually depend upon great changes in the form and degree of divisibility of the capital inputs. But this, in turn, raises the problem of how to measure the scale of a non-homogeneous input and a discussion of these difficulties is not relevant here.

[2] These components must not be exportable, otherwise producers in the smaller watch industry would enjoy external economies resulting from the greater scale of the other watch industry.

[3] All "competitive" firms possess the knowledge appropriate to perfect competition. An analogous degree of knowledge is possessed by the "monopolistic" firms. That is, the "monopolist" knows whether the demand price in the immediate neighbourhood of his current output exceeds or falls short of his marginal cost. No "monopolist" operating at an equilibrium output (where demand price equals marginal cost) has any knowledge of an alternative equilibrium point, at a *considerably* greater or smaller output, due to the intersection at two or more widely separated points of the demand curve for his product and his marginal cost curve. But each "monopolist" will through trial and error have knowledge of the existence, at outputs *slightly* higher than his current output, of alternative equilibrium outputs, which may result from the upward shifting of the demand curve for the "monopolist's" product, when that product becomes cheaper and so lowers the cost curves of all firms purchasing that product. A "monopolist" always operates at the highest equilibrium output of which he has knowledge.

[4] P. A. Samuelson, "Factor Price Equalization Once Again", *Economic Journal*, June 1949, pp. 184–5.

If the two national pre-trade price ratios between watches and wheat differ, trade between countries A and B is possible, and begins at an initial price ratio always intermediate in value between the two pre-trade ratios. Three alternative assumptions can then be made concerning the final equilibrium terms of trade :

(1) That the long-run equilibrium price ratio is not necessarily the same as the initial trading price ratio ; that time elapses before the trade-induced adjustments of output in each industry in each country are completed ; and that the only conditions imposed on the value of the equilibrium price ratio are that it should equal consumers' marginal rate of substitution and the marginal rate of transformation between wheat and watches in both countries,[2] and should equalise the imported and exported quantities of each commodity.

(2) That the equilibrium terms of trade are established instantaneously when trade opens ; but that, later, world demand conditions may change and produce, again instantaneously, a new equilibrium.

(3) That the equilibrium price ratio is established instantaneously and is frozen for ever.

These distinctions are immaterial if a country's production curve is convex. There is an invariable gain from trade, though the amount of the gain may vary with the price assumption. But a country with a concave production curve may lose from trade under price assumption no. 1 or 2, and may fail to maximise welfare under assumption no. 3.

2. Delayed Price Equilibrium

In Fig. 1, P_0 is the optimum production and consumption point of country B before trade, and lies on a concave production curve (heavy solid line) and on the tangential community indifference curve (dotted line). The pre-trade price ratio of wheat to watches in country B equals the absolute slope of both curves at P_0. At the opening of trade, but before enough time has elapsed to permit any movement of production away from P_0, there is established a new price ratio more favourable to wheat and represented by the slope of the exchange line, I_{00}, and consumption moves on to a higher indifference curve though not to any position of equilibrium.

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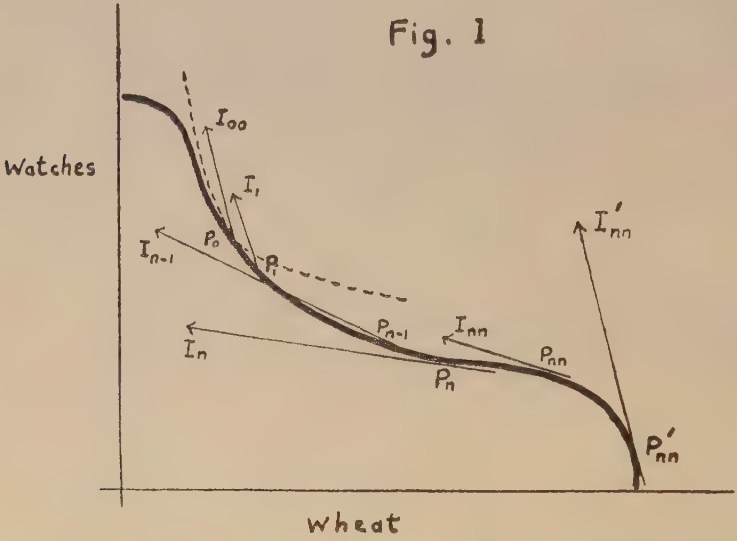
[1] The assumption of a wholly concave curve would not lead to essentially different conclusions. To secure an unique and stable pre-trade production and consumption point on a partially or wholly concave production curve, the curvature and slope of the country's system of indifference curves must be such that only one indifference curve is tangent to the production curve, and this indifference curve lies wholly to the right of the production curve except, of course, at the point of tangency.

[2] Except that if a country becomes completely specialised in the production of one good, that good's price may exceed its marginal cost.

The changing value of the terms of trade during the adjustment of production in each country is determinate for each moment in time if we know each country's production curve, indifference curve system, and the rate at which production moves along each production curve. Only by chance will the terms of trade remain constant. Supposing that they turn against wheat because B's resources of capital and labour greatly exceed A's, and because A's production point reaches a convex sector on A's production curve while B's production point is still on the concave sector of B's curve. Then the slope of the exchange line, I_1, I_2, ...I_{n-1}, I_n, diminishes as production moves to P_1, P_2, ...P_{n-1}, P_n. So long as the slope of the exchange line from any production point exceeds the slope of the

Fig. 1



production curve at that point, there is a profit incentive to expand the output of wheat at the expense of watches. But if equilibrium is established through the slope of the exchange line, I_n, falling to the value of the slope of the production curve at any point, P_n, on the concave sector of the curve, then trade along I_n must bring B's consumption point on to an indifference curve lower than the pre-trade curve through P_o. There is even a loss from trade when, although the equilibrium production point, P_{nn}, reaches the convex sector of the production curve, yet the exchange line, I_{nn}, has declined so much that it no longer intersects the indifference curve through P_o.[1]

Since both the constant- and increasing-returns-to-scale industries show decreasing *relative* costs where the production curve is concave, a loss from trade may result from the over-expansion of either industry.

A loss by country B is always associated with a gain by A. A's gain may be greater than B's loss because world productivity is maximised by free trade and by subsidising the decreasing cost industry so as to equalise price and marginal cost. On the other hand, A's gain may be less than B's loss if, for example, B specialises in the decreasing cost industry and bears the entire burden of the subsidy to that industry in B.

3. Successive Instantaneous Price Equilibria

A constant trading price ratio (an exchange line parallel to I_{oo}) cooperates with the concave shape of the production curve to move production from P_o to P'_{nn} (Fig. 1), and to bring consumption on to a higher indifference curve via the exchange line, I'_{nn} (still parallel to I_{oo}). But now suppose a change in demand conditions and a new instantaneous equilibrium price ratio equal to the slope of I_{nn}. Production shifts to P_{nn}, and consumption to an indifference curve lower than the curve through P_o.

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[1] Cases I and II (*b*) in Professor F. D. Graham's "Some Aspects of Protection Further Considered" (*Quarterly Journal of Economics*, February 1923, pp. 203–13), follow closely the above analysis. Graham's arithmetic implies a concave production curve and final terms of trade worse than B's pre-trade price ratio. Graham's Case I depicts country B's production at the point P_o. His Case II (*b*) depicts B's production at the point P_{n-1}. Graham seems to have implied incorrectly that there will be a loss from trade the moment the terms of trade become less favourable to wheat than was the pre-trade price ratio in B (p. 210). The geometry shows, however, that B always gains from trade even when the final terms of trade are *slightly less* favourable than was the pre-trade price ratio.

4. SINGLE INSTANTANEOUS PRICE EQUILIBRIUM

Restricting ourselves to a single instantaneous price equilibrium, consumption moves from P_0C_0 to C_1 and remains there (Fig. 2). A loss from trade is impossible.[1]

While in this case free trade always increases welfare, yet it may or may not *maximise* welfare.[2] If, in Fig. 2, production and consumption before trade were at P_0C_0, any point below X,[3] then trade will move production to P_1 and consumption to C_1. If, however, production and consumption before trade had been at $P_{00}C_{00}$, any point above X, then trade at the same price ratio would have moved production to P_2 and consumption to C_2. C_2 is better than C_1. A country, therefore, which finds its production point below X, will gain by subsidising one industry so as to shift production to a point above X, when the subsidy may be

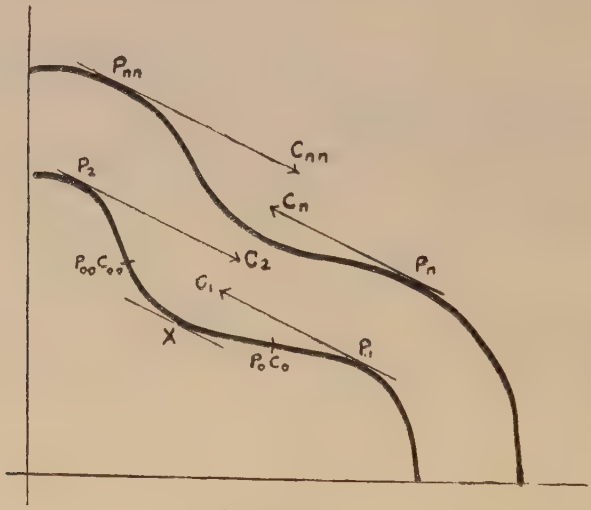

Fig. 2

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[1] This is the special case referred to in the introductory section. Professor Tinbergen claims that a loss from trade may occasionally arise even with constant terms of trade, if the production curve is partly convex and partly concave (*op. cit.*, pp. 192–3). A proof to the contrary is not included here for lack of space.

[2] This point has already been made by Professor Tinbergen in relation to a partially concave production curve (*op. cit.*, p. 192). The restatement here is in a slightly different form which makes it easy to see that this failure to maximise welfare could also occur if the production curve were wholly concave.

[3] Which is the point of tangency between the production curve and a line parallel to the exchange line.

abandoned and market forces alone will bring consumption to C_2.[1]

5. The Real World

The preceding theory has no practical significance if the assumed concave production curves do not exist. No attempt is made here to assess the realism of this assumption. But if concavities do occur in the relevant production curves, P_1 and C_1 (Fig. 2) may crudely depict the production and consumption positions of some countries which lack, but are in the long run suited for, increasing-returns-to-scale industries. These industries may qualify for three analytically distinct subsidies: first, a subsidy equal to the excess of average over marginal cost; secondly, in underdeveloped countries, a subsidy on account of a social product exceeding the private product; thirdly, after this equalisation of private and social cost, a subsidy to lower both private and social cost by enlarging the scale of the industry; that is, to shift production from P_1 to a point above X.[2]

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[1] In the place of a fixed national factor endowment and production curve, we can substitute the idea of a production curve which shifts upward and to the right as the factor endowment is augmented by saving or by loans from abroad. Then, a subsidy enables production and consumption to move from P_0C_0 to P_{nn} and C_{nn} respectively, while the unaided price mechanism brings production and consumption only to P_n and C_n (Fig. 2).

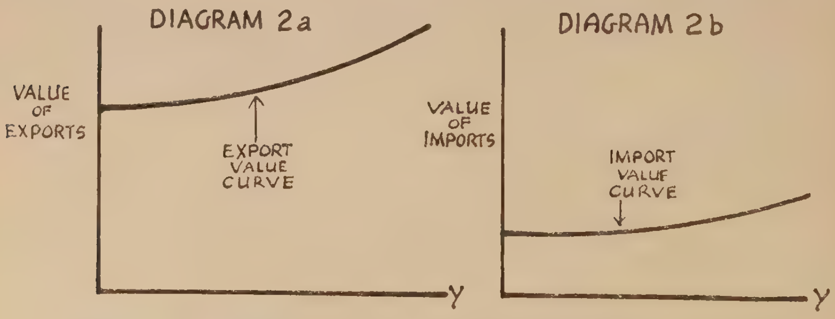
[2] A high level of general industrialisation in a country may disqualify an "infant" industry's claim to the second subsidy, but not the third. Of course, the third subsidy may be liable to criticism in that the gain it yields to one country may be at the expense of others.

National Income, Exchange Rates and the Balance of Trade: A Note

By W. Beckerman

The purpose of this note is to suggest a slight addition that might be made to Mr. Savosnik's very neat system of diagrams[1]. This concerns the slope of the balance of trade line for a country which is starting from a position of unbalanced trade.

The principle is very simple and obvious. Suppose a country runs, say, a permanent favourable balance of trade, and an increase in her income causes equal proportionate increases in the value of both her imports and exports, then her absolute balance of trade must increase. Then the slope and direction of Mr. Savosnik's balance of trade line in his diagram 5 would no longer depend merely on the elasticities of supply and demand for imports and exports, but also on the relative sizes of imports and exports. This may be illustrated by drawing his diagrams 2a and 2b as follows :



In these two diagrams, it is assumed in order to illustrate the main principle, that a rise in home income causes an equal proportionate rise in imports and exports. Starting from a position where exports are much greater than imports, it follows then that for any given Y, the slope of the export value curve must always be greater than the slope of the import value curve. Thus any rise in Y will increase the absolute difference between the two curves. Consequently, provided export value is positively related with income it is possible for the balance of trade line in diagram 5 to be upward-sloping with less rigorous demand and supply elasticity conditions than are otherwise required.[1]

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[1] *Economica*, May, 1950.

The interesting question, of course, is whether the necessary conditions for upward-sloping balance of trade—on income—curves are often likely to exist. In a rather special sense I have been able to identify and verify a case where they did exist during the inter-war period. In the Danish trade with the U.K. during that period Denmark was running a very heavy favourable balance of trade with the U.K., and I have calculated the British elasticity of demand for Danish products to be $-0{\cdot}64$.[2] At the same time the prices of Danish exports were sensitive to changes in Danish money national income, as working costs formed, on the average, about 80 per cent. of price. The result of these two factors was that the value of Danish exports tended to increase with a rise in Danish income. On the other hand, the high Danish income elasticity of demand for U.K. goods (calculated to be $+2{\cdot}76$) caused the value of Danish imports to rise, on the whole, by a greater proportion. But the " proportionality effect ", explained above, of Denmark's very heavy favourable balance with the U.K. was sufficient to offset this, with the result that the absolute rise in export value tended to be greater than the absolute rise in import value. Consequently, this appeared to be part of the explanation why the Danish favourable balance of trade with the U.K. tended to expand at times of rising Danish income (other factors being allowed for). The story was not the same for the Danish balance of trade with the whole world, however, as Denmark was running only a relatively slight import surplus with the whole world.

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[1] Following the assumptions specified, we may write :

$$\frac{\triangle X}{X} = \alpha \triangle \log Y; \quad \text{and } \frac{\triangle M}{M} = \alpha \triangle \log Y. \qquad \text{(Where } X = \text{Exports, } M = \text{Imports, and } Y = \text{Income)}$$

$$\therefore \triangle X = X(\alpha \triangle \log Y); \text{ and } \triangle M = M(\alpha \triangle \log Y)$$

$$\therefore \frac{\triangle X}{\triangle M} = \frac{X(\alpha \triangle \log Y)}{M(\alpha \triangle \log Y)} = \frac{X}{M}.$$

$\therefore$ Under our assumptions, only when $X = M$ will the balance remain constant.

[2] Any resemblance which this elasticity may bear to other British elasticities of demand (e.g. Chang's e. of d. for total U.K. imports of – 0.64) is entirely coincidental in both senses of the word.

In general the countries facing inelastic demands, and having inelastic supplies, will be the primary producing countries. But, on the other hand, in so far as these tend to be the less developed countries they will probably be capital importing countries. Thus far from having export surpluses they will tend to have import surpluses which would mitigate and may even offset the upward-sloping tendency which the balance of trade lines of primary producing countries would otherwise probably have.

Consequently, although in some particular cases the elasticity conditions for upward-sloping balance of trade lines are not required to be very rigorous, for primary producers, in general, the reverse is probably true.

University of Nottingham.

A Note on the Effect of Income Redistribution on Aggregate Consumption with Interdependent Consumer Preferences

By Harry G. Johnson

In his pioneering and highly suggestive book on *Income, Saving and the Theory of Consumer Behavior* Dr. Duesenberry has pointed to the possibility that, when consumers' preferences are interdependent, redistribution of income from rich to poor may have the effect of reducing aggregate consumption and increasing aggregate saving from a given income.[1] The purpose of this note is to point out that this conclusion does not follow unambiguously from the interdependence of preferences, but instead depends on an implicit assumption about the precise nature of that interdependence.

According to the Duesenberry theory the satisfaction obtained by the i'th individual from consumption depends not on his absolute consumption C_i but on his relative consumption $\frac{C_i}{\Sigma\, a\, ijCj}$, where C_j is the quantity consumed by the j'th individual and a_{ij} measures the importance attached by the i'th individual to that quantity. In connection with certain additional assumptions, this theory permits Dr. Duesenberry to explain both the secular constancy of the proportion of aggregate income saved, and the fact that the percentage of individual income saved is higher, the higher the position of the individual in the income scale.

The theory does not, however, suffice to explain what happens to aggregate consumption when a given aggregate income is redistributed. In the two cases just mentioned, all the C_j's are assumed to change in the same direction or remain constant, so that the effect on the fraction $\frac{C_i}{\Sigma \alpha_{ij} C_j}$ is unambiguous and independent of the α_{ij}'s; but with redistribution of income, some of the C_j's will increase and others will decrease, and the effect on the fraction, and therefore on the i'th individual's satisfaction, will depend on the values of the α_{ij}'s. If the coefficients attaching to the quantities of other individuals' consumption which are reduced as a result of the redistribution are greater than the coefficients attaching to the quantities of other individuals' consumption which increase as a result of the redistribution, the value of the fraction will rise and the i'th individual's satisfaction would be increased if his consumption were unchanged; he will consequently tend to reduce his consumption. Conversely, if the coefficients in the first group are lower than those in the second the i'th individual will tend to increase his consumption. In the first case aggregate saving from a given income will rise, in the second case it will fall, as a result of redistribution.

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[1] James S. Duesenberry, *Income, Saving and the Theory of Consumer Behavior* (Harvard University Press, 1949), pp. 44–45. Dr. Duesenberry's proposition is more clearly formulated in Mr. Turvey's excellent review of the book (*Economica*, New Series, Vol. XVII, No. 68 (November 1950), pp. 451–54). Mr. Turvey's exposition is itself not impeccable, since he assumes (p. 454, top) that, excluding interdependence of preferences, the fact that the saving ratio increases with individual income is sufficient to make income redistribution lower the aggregate saving ratio. This is a necessary condition, but the sufficient condition is that the marginal propensity to save increases with individual income.

The point may be illustrated by a highly simplified arithmetical example. Suppose a community of three people, each of whose satisfaction depends on his consumption relatively to the other two, and suppose that initially A consumes 50, B consumes 100, and C consumes 150. Now suppose income to be redistributed from C to A, leaving B's income unchanged, so that C consumes 25 less and A consumes 25 more. Now, if B assigns a coefficient of $\frac{1}{4}$ to A's consumption and $\frac{3}{4}$ to C's consumption, his relative consumption if he consumed 100 as before would rise from 4/5 to 8/9; his satisfaction would be increased, and he would tend to reduce his (and aggregate) consumption. If, on the other hand, he assigns coefficients of $\frac{3}{4}$ to A's consumption and $\frac{1}{4}$ to C's, his relative consumption if he consumed 100 as before would fall from 1 and 1/3 to 1 and 1/7; his satisfaction would be reduced, and he would tend to increase his (and aggregate) consumption.

The two possibilities just discussed correspond to two contrasted types of interdependence of consumer preferences. The first is the "keeping up with the Joneses" type, in which the consumer is anxious to consume goods in quality and quantity as close as he can afford to the standard set by the consumption of income-groups higher in the scale than himself. This type of attitude, which may be termed " emulation ", leads to the consumer attaching a relatively high valuation to consumption greater than his own, and a relatively low valuation to consumption less than his own. The second is the " keeping ahead of the Smiths " type, in which the consumer is anxious to consume goods in greater quantity and better quality than those consumed by people with incomes lower than his own. This type of attitude, which may be termed " superiority ", leads to the consumer attaching a relatively high valuation to consumption lower than his own, and a relatively low valuation to consumption greater than his own. In terms of Dr. Duesenberry's fraction, " emulation " implies

$$\alpha_{ij}(C_j < C_i) < \alpha_{ij}(C_i < C_j)$$

and " superiority " implies

$$\alpha_{ij}(C_j < C_i) > \alpha_{ij}(C_i < C_j).$$[1]

In an economy in which " emulation " is the predominant type of interdependence of consumers' preferences, " America " for short, redistribution of income from rich to poor would have the effect of increasing the aggregate saving ratio ; but in an economy in which " superiority " predominates, " Europe " possibly, such redistribution would have the effect of reducing the aggregate saving ratio. Dr. Duesenberry's proposition implicitly assumes "America ", and would not hold for " Europe " ; this suggests an interesting sociological bias in the Duesenberry theory, requiring caution in the application of its results.

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[1] The argument could be alternatively stated in terms of asymmetry in the interdependence of consumers' utility functions. Such an asymmetry is specifically introduced by Dr. Duesenberry in his welfare analysis of direct taxation (*op. cit.*, Ch. VI, Sec. 1).

Industrial Fluctuation

By T. S. Ashton

It is hardly to be expected that those who open Professor Robertson's book[1] for the first time will experience the same thrill as those of us who read it thirty-six years ago. We had been brought up on Marshall and had exercised our wits mainly on the theory of value, consumers' surplus, quasi-rent, and so on. It is true that we had brooded a little on the meaning of economic progress and were aware that its course was subject to oscillations. We knew that investment (which was identified with saving) had something to do with these, but we were not at all clear that it lay at the heart of the matter, and we were left free to make our own choice between competing explanations of the trade cycle, labelled variously "climatic", "psychological", and "monetary". We tended to lay stress on disruptive forces that operated from outside the system or to attribute the fluctuations to human folly if not, indeed, to human guile. Pigou's *Wealth and Welfare* had widened our horizon and brought more subtle instruments of analysis. But it was this work, written by a Cambridge don in his early 'twenties, that provided us with our *Novum Organum.*

Much of what was exciting in its pages is now part of the stock-in-trade of every theorist—far more, one suspects, than is to be gathered from the over-modest, but otherwise wholly delightful, Introduction the author has contributed to this reprint. It must be left to those familiar with recent writings on fluctuations to estimate the place of the book in the history of doctrine. The purpose of this notice is simply to point to the features that made it so arresting when it first appeared, and—paradoxically—to call attention to its conservative, as distinct from its revolutionary, tendencies.

If Dennis Robertson had not been an economist he would surely have been a biologist. Passages in this book (such, for example, as those on the fleet-footed cassowary and on the psychology of the phagocytes) give intimations of a preoccupation with the behaviour of the lower orders of creation that was to be more fully disclosed in his later writings and reached its height of expression in the exquisite essay on *The Snake and the Worm*. It seems probable that if Robertson had lived in the Middle Ages he would have made his name as the compiler of a bestiary. And it may be suggested that the attachment to Alice which, as this book shows, had begun as a boy-and-girl affair, was not uninfluenced by the fact that she, like he, was a zoophilist. One of the things that made this book so stimulating was its biological approach. We had, of course, been told in lectures, till we were sick of hearing it, that society was an organism. But, until Robertson pointed it out, we had not realised that the instruments of production were not brought into being by a sudden act of creation but that it was necessary for a more or less lengthy period of gestation to intervene between conception and birth. We knew, of course, that in modern industry the unit of production was large, but we had not appreciated the fact that, like the baby presented for inspection by Solomon, it was imperfectly divisible and intractable. We knew that this same unit was not an ephemera, but we had not been called on to reflect on the consequences of its longevity. And it had certainly never occurred to us to classify industries according to their susceptibility to such physical disorders as dyspepsia or dysentery. Now, however, we ate of the fruit of the tree of knowledge and became adult.

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[1] *A Study of Industrial Fluctuation.* By D. H. Robertson. London: P. S. King & Son, 1915. Series of Reprints of Scarce Works on Political Economy No. 8. Reprinted by the London School of Economics and Political Science, 1948. Price 12s. 6d.

No less important in the educative process were the sections of the book that dealt with the effects of changes in the volume and value of the crops. Our distant forefathers had been fully aware that a failure of the harvests brought, not only distress, but also depression and unemployment. If evidence were required, annalists of the eighteenth century could bear witness that this had been so in 1709, 1727-8, 1740, 1756, 1766-7, 1771-3, 1794-5, and 1799-1800. It was hardly less clear that abundant harvests were closely associated with both general wellbeing and a high state of activity in agriculture and manufacture alike. In a community in which most people were occupied in growing, reaping, carting, threshing, or transporting agricultural products, or in operations such as milling, baking, brewing, distilling, spinning, weaving or otherwise working up materials drawn from the land, the effects of the vagaries of the seasons were too obvious to call for explanation by the learned. Adam Smith, it is true, had valuable observations to make on the connection between the state of the harvests and the level of wages (*Wealth of Nations*, Bk. I, Ch. VIII)—and, like Robertson, he expressed them in real, as distinct from monetary, terms. But as time went on, improved methods of cultivation, better facilities for storage, and greater opportunities of importing foodstuffs tended to mitigate the effects of adverse weather; and as early as 1773 Gilbert White of Selborne remarked that a run of wet years, such as had recently been experienced, would have produced a famine a century or two before. Moreover, as a larger proportion of the energies of the nation came to be devoted to the higher stages of production, and especially to the provision of capital goods, other causes of instability overshadowed those operating from the soil. Nevertheless, as Professor Rostow and others have shown, abundance of the staple crops played a part in the rising activity that culminated in 1825, 1836 and 1845, and shortage an even more significant part in the slumps that followed the booms of these years. It was the core of the case for the abolition of the Corn Laws, as put forward by Cobden, that high prices of wheat depressed wages and held down the demand for the products of British manufactures. In the period of later Victorian prosperity, however, when supplies of cheap food poured across the Atlantic, such things were forgotten; and after the failure of the gallant attempt of W. S. Jevons to establish a connection between sun-spots and harvests there was, as Robertson reminds us (p. 129), a widespread reluctance to admit the importance of influences springing from the soil. In the years before 1914 to exhibit any leaning towards celestial or crop theories was, indeed, to invite the suggestion that one ought to go to see a doctor. Robertson showed courage. He provided historical illustrations, drawn from the period after 1870, of the dependence of particular industries on the volume and value of a number of crops. And he offered a logically satisfying explanation of the manner in which—granted an elasticity of effort-demand for agricultural products greater than unity—variations in the harvests might influence investment and so play a part in fluctuations of general activity. Perhaps he was over-precise in attributing activity in the constructional industries to investment by farmers and that in consumption industries to resources proceeding from special groups of consumers. But at the time when he wrote neither the multiplier nor the accelerator had been invented, and he had a healthy distrust of explanations of fluctuations that depended on what were vaguely described as repercussions. Throughout the series of chapters that deal with the effects of the harvests Robertson held fast to the wisdom of the past and gave it expression in a form acceptable to the mind of his day.

The same observation may be made on his treatment of the nature of booms and the forces that lead to their collapse. Early commentators on the trade cycle had recognised the limits set to the upward movement by the supply of accumulated resources. Writing in 1826, John Wade had declared that the calamities of the preceding year had resulted from " a spirit of overtrading, on the basis of credit, without real capital or resources ". Robertson went much further. In his view the trouble arose from undue investment in instrumental goods, a progressive depletion of stocks of consumers' goods, and hence an inability to operate the instruments created. It was as though a man had put all his resources into the purchase of a car and was unable to run it for lack of petrol. In his Introduction he tells us he derived the idea from a French scholar, Marcel Labordère, whose graceful and lucid essay on the American crisis of 1907 is included as an Appendix to this reprint. But much the same point had been made exactly fifty years earlier by an obscure member of the Manchester Statistical Society, T. H. Williams, in the following words :

> " One common mode in which a too easy condition of credit leads to a derangement is that of an excessive conversion of floating into fixed capital. There must be a due proportion between these two classes of capital in order that their joint efficiency may be fully realised. It is obviously worse than profitless to divert so much labour from the production of goods to the making of railways, or from the growing of raw materials to the making of machines, as that we have not goods enough to employ the former, nor raw materials enough to keep the latter profitably at work. When this disproportion takes place in such vast undertakings as railways, a proportionate monetary derangement is the consequence."

It is most unlikely that Mr. Robertson had ever set eyes on this passage. It is quoted simply as a further illustration of the way in which, wittingly or otherwise, he gave utterance in this book to the best thought of earlier generations.

Stress has been laid on the glow-worm : none at all on the searchlight. There is a danger that the reader of this notice may not realise that *Industrial Fluctuation* is a work of singular originality and analytical power. The fault lies—alas !—in the reviewer, who, like an owl, flutters feebly in the strong light. He is qualified, however, to say with assurance that the appearance of the book marked a departure in the writing of economic history. The skill with which the details were assembled, and the imagination with which their inter-relations were exposed, were remarkable in a man of little more than undergraduate years. Here, long before anyone else had noticed them, Robertson called attention to the counter-cyclical nature of the building industry, and the peculiar characteristics of British ship-building. A comment (on p. 72) that expenditure on articles of luxury seems to be merely the reflex of fluctuations in the profits of constructional and other industry may be commended to the disciples of Sombart, and the sections on invention could be read with profit by the followers of Schumpeter. Tucked away in a footnote one may come across such arresting observations as that people tend to drink more in times of prosperity and smoke more in times of depression. It was a misfortune of scholarship that such a book should have seen the light in 1915—a time inauspicious to works of either historical or speculative thought. This reprint may do something to make amends for the ill luck. Any student who—on the grounds that history has moved on, or that a new system of economics was brought into being in 1936—fails to seize the opportunity offered will do himself the gravest injustice.

The London School of Economics

Book Reviews

The Rôle of Measurement in Economics. By RICHARD STONE. Cambridge University Press, 1951. viii + 85 pp. 12s. 6d.

This monograph is an expanded version of the Newmarch Lectures given by Mr. Stone at University College, London, in the session 1948–49. Mr. Stone's main thesis is that any distinction between a theoretical and an empirical approach to economic problems is completely false. Measurement without theory and theory without measurement are equally sterile. Measurement is needed in a proper quantitative-theoretical development of economics for several purposes. This is perhaps not fully appreciated, even now that quantitative research in economics has become so respectable. It is certainly well worth while to distinguish, as Mr. Stone does, the various purposes and to give illustrations of them.

There is first the need for measurement in describing past economic trends and present economic situations. Here, Mr. Stone makes a good point in distinguishing between the *economic* and the *statistical* design of any inquiry for ascertaining facts (pp. 10–12). He pleads for a greater emphasis on economic design and less reliance on manipulation of statistics designed for other purposes. Further, without detracting from work being done on sample design, he points to the serious consequences of failure to obtain either the correct or indeed any response for informants. This latter problem has received little attention in the past but is now being taken up, e.g. by Professor Kendall's Division of Research Techniques at the London School of Economics.

Secondly, there is the testing of hypotheses—which is not just a simple matter of yes or no. Indeed, any test is bound to be in a sense asymmetrical. Hypotheses may be rejected as not conforming to actual data. But they cannot be verified on any exact criterion—but only in the sense that they continue to avoid being contradicted. As Mr. Stone puts it: " The verification of all theories concerned with the actual world consists essentially in satisfying ourselves that for practical purposes the actual world behaves as if the postulates of the theory held true in it " (p. 15). The operative words here are " for practical purposes ". In addition, there is the related question of the estimation of the parameters which appear in any theoretical model, which comes to the estimation of the influence of this or that factor. Mr. Stone illustrates these two uses of measurement by reference to the analysis of market demand, a subject he has made very much his own. Here, it is a matter both of the testing the relevance of the postulates of the theory of choice and of estimating such parameters as the various elasticities of demand.

Finally, perhaps the most important purpose of all is that of prediction. Though this may follow the estimation of parameters, it can be undertaken quite independently. Mr. Stone uses as his illustration a macro-economic model of the dynamic savings-investment type familiar in trade cycle theory. In his development (particularly pp. 27–32) he uses intentionally an over-simplified model. My difficulty is not the extreme simplification but rather that Mr. Stone chooses a case which is so special as to be useless for any explanatory purposes. He takes a difference equation with coefficients so arranged as to give a regular oscillation in national income and other variables, an oscillation which is neither damped nor explosive. This case is artificial to the point of triviality. Consequently his example of economic policy is equally artificial, concerned as it is with the use of various fiscal devices by the government to remove a *regular* cycle. Mr. Stone later discusses (pp. 32–35) some more practical matters in general terms. One is the effect of disturbances, including the influence of omitted variables. This leads to the formation of a stochastic model with the consequent disturbing effect on prediction. Another difficulty is the changing structure of the model itself, as in a partially planned economy. The moral of Mr. Stone's story is that prediction is beset with the most formidable difficulties. Indeed, anything like a full prediction of the course of economic variables presupposes an immense amount of knowledge. Mr. Stone is not without hope and he points to the success, at least for the relatively free U.S. economy, of economic models such as that developed by Mr. Klein in a recent Cowles Commission monograph.

The book will be mainly of value to economists who can think in the concise terms of the mathematician, and particularly to those professionally interested in econometrics. To these, in effect, Mr. Stone says that, while appreciating the work being done, he would draw their attention to the need to take a wider view of their problems, to make sure of the fundamental bases of their methods and to collaborate with other specialists inside and outside their own field. This is not to say, however, that the non-mathematical economist will find nothing of interest to him in Mr. Stone's developments. On the contrary, with a little judicious omission of the tougher sections, every economist can learn, to his profit, something of the problems of econometrics and something of what econometricians are attempting to do.

R. G. D. ALLEN.

The Dynamics of Business Cycles. By J. TINBERGEN and J. J. POLAK. Routledge & Kegan Paul Ltd. 1950. x + 366 pp. 25s.

This book presents an outline of Professor Tinbergen's analysis of economic fluctuations. It is a useful drawing together of work that has appeared in a number of tongues and has often been set out with the aid of a mathematical symbolism that has deterred many potential readers. Such has been the quality of that work that we should be grateful to Dr. Polak for giving us this revised translation of Tinbergen's *Economische Bewegingsleer* which appeared in 1942.

The book falls into three parts : a description of movements in the economy ; the analysis of these movements ; and thoughts about policy. Throughout there is a strict eschewal of any but the simplest mathematical symbols.

Part I opens with a useful chapter setting out the various categories of movements that occur and explaining in a simple way some of the terminology of the econometrician. But as the book is in part at least intended to be a textbook, the emphasis is on simplicity and we are not initiated too deeply into these mysteries. The remainder of this first part is devoted to the outline of the facts about economic fluctuations that one customarily finds in textbooks on business cycles —essential but dry ! It will be noted that the traditional decomposition of time series is followed : the separating out of trend, cyclical, and random movements, and so forth. But Tinbergen is fully alive to the impossibility of presenting an adequate theory of the trade cycle without making provision in the analysis for trend and random factors. All of these forces must be considered together, but the emphasis on simplicity constrains him from doing more than pointing briefly in Chapter I and at greater length in Chapter XVI to the artificiality of any theory that examines the cycle and the trend separately.

We are, however, anticipating the argument, for Chapter XVI comes at the end of the long Part II in which Tinbergen analyses the various movements described in Part I. In many ways the heart of this part is to be found in Chapter XIII, for here Tinbergen outlines his approach to the trade cycle. It is not the full story of the cycle, but at the same time it cannot be read without profit.

It is most important in analysing the cycle to preserve some balance between the real and the monetary forces that are at work. Tinbergen contrives to find a place for both. His own contribution has been his attempt to replace the acceleration principle by his profits principle. In so doing he reminds us that financial matters play a vital part in the organisation of a firm and must therefore impinge upon its investment policy. He buttresses the findings of correlation analysis by pointing out that there are two good reasons for thinking that the current level of profits strongly influences investment decisions. In the first place, they are probably quite a good guide to future prospects in an uncertain world. In the second place, they largely determine the possibilities of self-financing. For all that, it is not easy to see that the simple profits principle is applicable to investment in new firms or industries or to the new ventures of existing firms. Perhaps, therefore, Schumpeter's theory deserves better treatment than the brief reference on page 173 to purely technological developments. This is particularly true if we bear in mind that Schumpeter's innovations may be unimportant in the aggregate, but yet have a significant impact effect.

It would appear then that the profits principle is mainly concerned with the expansion of existing firms in existing activities. In short, it is relevant where replacement investment is important relative to net. Tinbergen discusses the movements of replacement investment, and emphasises the great difficulty of distinguishing between it and net investment. He does not, however, pursue the intriguing question of what is the behaviour of gross investment influenced both by profits and by the age structure of capital equipment.

It is a fairly well attested fact that the level of profits goes on rising right up to the close of the boom; and Tinbergen subscribes to this view by taking profits as dependent on the level of national income. How then can the profits principle explain the downturn of investment? Here the analysis becomes rather tantalising. Tinbergen demonstrates how the profits principle *may* be used to explain the cycle. But we are left in some doubt as to how it *should* be used, particularly if we recall the brief allusion on page 166 to W. C. Mitchell's idea that unit costs rise and fall at faster rates than national income. Tinbergen is possibly more concerned here, as at other points in the book, to demonstrate a technique than to provide an explanation.

In short, this book is stimulating, and this quality is fully maintained in the closing section on policy. There is a useful index, but unfortunately no bibliography.

A. D. KNOX.

The Economics of Freedom. By Howard S. Ellis. Harper Bros. for the Council on Foreign Relations, New York. Royal Institute of International Affairs. 1950. xviii + 549 pp. $5.00. 35s.

This book makes a powerful contribution towards the problem of formulating American foreign economic policy for the next decade. It is in a sense authoritative for while Professor Ellis and his collaborators are responsible for the views expressed the book arises directly out of the deliberations of the policy group formed, under the chairmanship of General Eisenhower, by the Council on Foreign Relations with the purpose of assessing and correlating the economic, military and political parts of the Aid to Europe problem. It deals comprehensively with the general setting of E.R.P., the position of the key countries in European reconstruction and European economic co-operation, and outlines the foreign economic policy that the United States should adopt. Throughout, the book is eminently readable, with an admixture of the rigorously formal and the descriptive, and constructive.

The economic philosophy which finds expression here has two predominant features. They are perhaps best put in Professor Ellis's own words. At p. 497 he writes: "For the foreign economic policy of the United States in the next decade, the conclusions of our study should be reasonably plain. The economic welfare of Western Europe is served better by consistent adherence to the principles of the International Trade Organisation than by emphasis upon Western European integration, provided the International Trade Organisation can be made an effective agency to promote a return to *generally* freer trade. The process inevitably will be slow—though perhaps no slower than the integration of small groups of countries". And on p. 535 he writes: "It is the primary responsibility of democratic nations to make the price system work".

Given this general outlook it is not surprising that after a wholly admirable systematic exploration of the numerous aspects and types of integration some should be judged pernicious, some of merely temporary usefulness and a few others worthy ot examination though likely to yield only limited benefits. Among those in the first category go the various plans that involve in one guise or another regional preferences; in the second goes a European clearing union; in the third go co-ordination of investment and of transport and the construction of hydro-electric plants which would serve several countries. The treatment leaves room for neither the elements of farce nor the streaks of fancy which have hitherto done so much to confuse these issues both in Europe and America. It is well that caveats are entered in respect of the third category for little indeed has yet been done to work out either the theoretical issues or the practical implications. Analytical work on location is still in its early stages. Decisions concerning aggregate capacity bring up the problem of forecasting aggregate demand while decisions concerning its spatial distribution raise the problem of the optimum rate of change between areas and that of weighting current comparative advantages against future development. There arises also the issue met so often in this field, namely the degree of centralisation necessary in order to obtain a sufficiently coherent policy to be worth pursuing. One cannot but feel sceptical of the outcome if one is thrown back time and again on an empirical approach with the motto *solvitur ambulando*. "Not all co-operation is good co-operation. . . . The danger of over-emphasising European integration is that its failures—or its inadequate successes—will be blamed for consequences that had other causes and that should have been dealt with by other means. . . . We need a policy which is more sophisticated in its aims, more flexible in finding means, and more convincing in its public justification" (pp. 444–6).

Professor Ellis's belief in the importance of working through pricing derive in part from his views on the inefficiency of physical planning and in part from the incompatibility of the free trading system he desires with the use of quantitative controls in international trade. He shares the growing feeling that recent econometric investigations have seriously underestimated the influence of price in international trade. Hence among his proposals high place is given to a revision of the American tariff which, as Professor Ellis realises, will have to affect the tariffs, frequently specific, on articles of mass consumption if it is to provide significant secondary facilities for European manufactures. " Increased imports by the United States help to provide foreigners with jobs and security ; they expand world trade ; they give the American something for his money. The programme fits well with Yankee common sense " (p. 493).

Among the more technical sections that on the future of the International Monetary Fund is perhaps the most stimulating. Possibly Professor Ellis goes over-far in ascribing the limited nature of the role hitherto played by the Fund to defects in its machinery. A not insignificant contributing factor has been the milieu in which it has had to operate. Much of this was unavoidable and raises the question whether the Fund was launched prematurely. But part, maybe the smaller part, was not an ' act of God '. As the Fund writes in its first annual report on Exchange Restrictions, " More rapid and consistent improvement would be possible if the internal policies of members were more decisively oriented to the Fund's objective of freeing current international payments from exchange restrictions " (p. 30). The implication is possibly that, while the Fund should be debarred from interfering in the domestic policies of members as far as this means specific policies, it should be given a *locus standi* as regards the aggregate effect of policies. With this Professor Ellis would appear to agree. It must be granted that a strong case now exists for supporting greater exchange flexibility than the delegates at Bretton Woods thought either necessary or wise (or both). When a respectable member of the international community like Canada cancels the official parity rate of exchange, as she did on September 30 last, it is time to look again at the Articles of Agreement.

Two more points with which to close. The first is that while Professor Ellis gives ' Third-Forcers ' and ' America-firsters ' especially something substantial to think over he is not unaware that " the predominance of (American) strength does not mean that all things are possible to American capitalism, and American political and economic statesmanship, even if they operate effectively. . . . It is in the end Europe's responsibility to order the disposition of its available resources so as to make free institutions more attractive to its own citizens than the desperate remedy of totalitarian government ". This prompts my last point. A book which does so much to inform, cajole and stimulate should be widely read. After having fathered the project which gave it birth the Council on Foreign Relations might well consider issuing the heart of the book—the chapters on European economic co-operation and American foreign economic policy—separately at a price everyone could afford.

D. J. MORGAN.

Keynes's 'General Theory'. By A. C. PIGOU. Macmillan & Co. 1950. viii + 69 pp. 6s.

In this little book, which contains two lectures given in Cambridge in 1949, Professor Pigou gives his appraisement of the *General Theory*. Most of what he says is a restatement of the skeleton of Keynes' theory, interspersed with some criticisms and emendations. The exposition, which is reminiscent of *Employment and Equilibrium*, is clearly and concisely done in a manner which infallibly proclaims its author.

The biggest difference from the *General Theory* lies in Professor Pigou's treatment of liquidity preference. Instead of $M = L_1(Y) + L_2(r)$ he has $\frac{Y}{M} = g(r)$, $\frac{Y}{M}$ being the income velocity of circulation of money. This leads him to analyse the effects of a fall in liquidity preference in the following terms: It " entails a larger income velocity of money; therefore more money income; therefore higher prices, and therefore, the money-rate of wages being given, more employment " (p. 45). Granted the assumptions, all this is of course correct, since it is a translation into words of the mathematical derivation of the answer to the question: In terms of the system of equations given, how does an upward shift in the function $g(r)$ affect employment ?

Trouble arises, however, if one goes on to ask *why* employment will be increased, since the best way of obtaining the answer is not necessarily the best way of explaining it. The quotation given in the previous paragraph would seem to indicate that when liquidity preference falls people will have surplus cash-balances and spend them. This is hardly a Keynesian explanation of why employment will rise, unless it be true, as Professor Pigou believes, that Keynes' intention was " to make his liquidity preference function the same as the Marshallian one ".

In the last two chapters, after pointing out that Keynes' analysis has the limitation of being confined to comparative statics, Professor Pigou pays most handsome tribute to its importance and originality and, finally, to Keynes the man.

With the exception of his treatment of liquidity preference, most economists would accept nearly all of what Professor Pigou has said, but his discussion contains virtually no mention of the applications and developments of the *General Theory* though surely it is their usefulness which must be our criterion in judging it.

RALPH TURVEY.

Price Determination: Business Practice versus Economic Theory. By WILFORD J. EITEMAN. Bureau of Business Research Report. No. 16. University of Michigan. 1949. iv + 39 pp.

In this monograph Professor Eiteman is not only very critical of the marginal theory of the firm, but presents an alternative short-run theory to " explain in simple terms how business men set prices and determine how much goods to produce ". He believes it " best to discard all conventional reasoning and techniques and to begin afresh ".

The marginal theory as it stands at present is certainly open to criticism, but not to Professor Eiteman's. His strictures are not only exaggerated, but often arise from a misunderstanding of the most simplified text-book exposition.

" Demand for a differentiated product, according to conventional theory, has two dimensions : price and quantity. Actually as we shall see, there is a third dimension—time " (p. 25).

" Great accuracy is implied in the curves used by monopolistic-competition theorists " (p. 28), and it is assumed that " business managers know their marginal revenue and marginal cost curves " (p. 14).

Conventionally a " factory will accept increased orders with great reluctance. According to conventional theory this reluctance shows itself in a rise of factory prices for the logic of the conventional doctrine requires that once a plant has adjusted output so that marginal cost equals marginal revenue, further increases or decreases in orders must be accompanied by price changes " (p. 19).

He says that if consumers' demand increases in a time of full employment, manufacturers' competition for the limited supplies of raw materials and labour will increase costs of production. " According to conventional theory, this rise in the cost of input factors would cause the least cost point to shift to the left and would lead to curtailed output. Actually the higher costs will lead to higher factory prices " (p. 15).

Professor Eiteman objects to the impression of the firm as a " sort of slot machine " into which entrepreneurs drop input units and draw out output units, and concentrates on the firm operating by turning its working capital. Conventional theory depicts expansion as an application of additional input units. Professor Eiteman suggests that businessmen are more concerned with expanding through the more intensive use of their existing working capital. He maintains that the object of investors " often is to maximize the rate of return on investment, not to maximize dollar earnings ".

It is on this view of the firm that his own theory is built. The rate of turnover is very closely allied to profits, and so " price and output decisions are based on changes in stocks and turnover rates, not marginal revenue and marginal costs ". It seems that the entrepreneurs will always respond to changes in demand by maintaining the rate of turnover. When demand increases and stocks fall output will be increased, because " instinctively business men feel that a rapid turnover at a low markup is more profitable than a slow turnover at a higher markup " (p. 15). When demand decreases and stocks rise prices will be reduced. The alternative of maintaining price and reducing output " will be employed only when a manufacturer feels that no other course is practical, for the close relationship of profits to turnover makes such a course of action appear unattractive ".

To these views the marginalist could reply firstly, that maximizing the rate of return on investment is exactly the same thing as maximizing profits if the firm's capital is given as is assumed here. Secondly, expansion in the short run may well mean the more intensive use of existing capital, if the supply of working capital to the firm is not elastic. What is the scope for increasing the rate of turnover of working capital ? Apart from disinvestment in stocks and cash more rapid turnover suggests either that costs were above their minimum or that credit terms are made more stringent, which is equivalent to a disguised price rise, and the shifting of the burden of borrowing elsewhere.

It is very probably true that changes in stocks and turnover rates are the basis of decisions about prices and output, because they are the symptoms of changes in supply and demand. But it is not clear why the " rate of return on investment ", or profits, will be maximized by maintaining the rate of turnover because of the close relationship of profits to turnover. Profits are also closely related to profit margins. This monograph therefore fails to answer the question, when and why do entrepreneurs change price and/or output when demand or costs change, and *by how much ?* It is also open to the same objection levelled against text-book marginalism. It ignores the problems of time and the relationship between short-run and long-run decisions. There can be no simple short-run theory of the firm in imperfect markets.

Nevertheless, if Professor Eiteman's conclusions are unacceptable, some stimulating ideas crop up on the way, so to speak. Conventional literature has been too concerned with very simple expense and revenue aspects of the firm, and given too little attention to the budgetary aspect of behaviour. The importance of inventories and expectations of changes in their prices is well brought out. And Professor Eiteman draws a nice picture of demand as a twilight zone of uncertainty between intra-marginal and extra-marginal buyers. The appearance of certainty given by black-and-white diagrams used for expository purposes has often led to exaggerated claims when using the diagrams.

J. Kerrigan.

Principles of Market Research. By A. H. R. Delens. Crosby Lockwood. 1950. 254 pp. 15s.

This guide to the practice of market research is concerned principally with surveys in which samples of consumers are interviewed about their habits and preferences with regard to products and brands thereof. In spite of some defects and limitations, it is an excellent introduction to the subject because its author is obviously an experienced practitioner of the art and describes its purpose, methods, and difficulties in a practical way, and with honesty and objectivity. The book, the only one of its kind published in Great Britain for many years, will be useful not only to beginners, but also to those who have a limited acquaintance with market research (or with social research, in which most of the techniques are similar), for it will bring many points of practice to their attention and will help them to clarify their ideas about others. It appears to have been written rather hastily: there are a few contradictions, and some dubious *obiter dicta* on matters which properly concern economists and psychologists; but they are easily detected and may be forgiven.

There is evidence that the author is more interested in practice than in theory. But in market research, as in most modern activities, a sound basis of theory is essential if mistakes are to be avoided. It is not to be found in this volume. The treatment of sampling technique is intended for readers with no mathematics and, in spite of the best intentions, is quite inadequate. The accuracy of some of the arithmetical examples is doubtful, and it is not entirely clear that this is due to carelessness. The pitfalls of quota sampling are mentioned, but their avoidance is not satisfactorily described.

That other principal problem in market surveys (as also in social surveys), the design of the interview, is treated in an objective but rule-of-thumb way. It was hardly possible for the author to have done better, since, for all the attention that has been given by statisticians to the theory and practice of sampling, little effort has been made to provide a theoretical basis for questionnaire design and interviewing. We all know that interviewers should be skilled, that the questions should not suggest the answers, that respondents' memories are fallible, and that their stated opinions and intentions have an uncertain relation to their behaviour. But the mind of the respondent, *qua* respondent and in relation to a questionnaire and an interview, remains a dark and almost uncharted cavern which the research worker explores with the help of introspection, intuition, common sense, and luck. It has at last been recognised that refined methods of estimating the errors of sampling are of little use where the errors of observation are of unknown, and possibly enormous, magnitude. The problem, having been recognised, is being attacked; but the results are yet to come.

The usefulness of Mr. Delen's book springs from the very fact that he is no mere theoretician. He describes the making of market surveys as one who has actually made them. It can be wished that, as he did not choose to provide an adequate treatment of sampling problems, he had at least emphasised the necessity for the non-statistician to consult an expert. His book has a good index, a short bibliography, a specimen questionnaire, and a glossary of terms which will be useful to the beginner.

FREDERICK BROWN.

Monetary Reconstruction in Italy. By Bruno Foa. King's Crown Press, New York. 1949. x + 147 pp. $2·25.

This volume is the third in a series published for the Carnegie Endowment for International Peace. It is introduced by a background analysis of pre-war political and economic conditions, followed by a survey of war-time inflation. This sets the stage for a statement of the recovery problem in terms of survival (and the need for a minimum level of imports), reactivation of industry and the export trade, reconstruction of physical assets, and the necessity " to put a stop to the delayed effects of the war in the fields of public finance, money and prices ". Associated with the last was the " distress inflation cycle " which was a post-war feature of all war-devastated countries. There is no doubt in the author's mind that " international, and to an overwhelming extent American, assistance established and kept open the life line which made possible the survival of the Italian people after 1943, and eventually paved the way for the beginnings of recovery ". But when it came to positive action on the part of the Italians themselves, little seems to have been done. *Laissez faire* and deficit finance were the order of the day. Foa is also very critical of exchange rate policy. Indeed, in the monetary field there would appear to have been too much theory and too little policy. The Italians may have been convinced that their theories were right, but their lack of action smacks more of expediency. The result was what one would have expected—a crisis of confidence (in the spring and summer of 1947). This was followed by the turning point; and the remedy, which was associated with the name of Einaudi, was little more than " a vigorous and ruthless dose of credit control ", which incidentally brought about a minor depression and caused much individual hardship. But this could scarcely be avoided, since " the overall monetary situation . . . had deteriorated to such a point that only strong and bold measures could avoid the final plunge into the abyss ". It is in describing the events which led up to this crisis and the measures which were taken to meet it that the book achieves its greatest usefulness. The author has been severely handicapped by the inadequacy of statistical material and there is a certain amount of conjecture as a result. But there is no loss of objectivity. The reviewer's only serious complaint is that there is rather too much general history and an insufficient abstraction of the monetary developments *per se.* In these circumstances, the absence of an index from a work which might otherwise serve as a useful reference book, is a serious fault. It ends with a consideration of Italy's place in the European Recovery Programme and a reminder that Italy's rehabilitation is also complicated by factors quite distinct from war and post-war disturbances, viz., pressure of population and poverty of physical resources. For this reason the Italian economy (in the view of the author) must become " part and parcel of a wider economic and ultimately political system."

J. S. G. Wilson.

Making Capitalism Work—A Program for Preserving Freedom and Stabilizing Prosperity. By D. M. KEEZER and Associates. McGraw-Hill, New York. 1950. ix + 316 pp. 30s.

The purpose of this book is (*a*) to expound the view that capitalism is the best way of economic life for the United States; and (*b*) to indicate the steps which must be taken " to give capitalism the promise of a prosperous future ". As a result of the " tax revolution ", the chief threat to capitalism is likely to take the form of an acute shortage of risk or equity capital. Business cannot safely rely on borrowing for more than a minor part of the funds it will need. The remedy is sought broadly in an overhaul of the tax system, tapping new sources of savings in the middle-income groups, and permitting institutional savers to invest partly in industrials. Various incentives to higher production (e.g. full restoration of wage differentials and profit sharing) are discussed. In the field of social security, growing demands for these services must be satisfied " without burdening capitalistic enterprise with a load it cannot carry ". Much faith is placed in the insurance principle. Government-financed social services " should be undertaken only where a genuine need cannot be met in any other manner ". Since " the jig is probably up for capitalism ", if business cannot be rid of " violent ups and downs ", an important part of the book is devoted to the problem of general economic stabilisation. Apart from some Government activity—public works, banking and fiscal policy, employment agencies—business must itself attempt to iron out violent fluctuations in expenditures on extensions, spend for cost reduction when times are slack, stabilise consumer buying through advertising, and get together with labour on wages policy to avoid the wage-price spiral. Foreign investment also has its part to play and the development of backward areas " should be programmed ahead . . . to provide a backlog of demand against the time when domestic capital investment lags ". If capitalism is to survive, competition must, of course be maintained though not to the extent that it seriously undermines " the security of any large economic group ". Finally the authors are concerned to encourage economy in the use of resources and favour the general application of conservation schemes, even if this means government intervention. The earlier chapters of this book are interesting and readable. The argument becomes rather more forced as it proceeds.

J. S. G. WILSON.

A Study of British Interest Rates, 1929–50. By Burton C. Hallowell. Connecticut General Life Insurance Company, Hartford. 1950. 173 pp.

This is an excellent brief survey of the movement of London interest rates, in relation to official policy. The point of view is very much that of the *Economist* and *The Banker*, on whose comments the author has drawn freely. For almost every phase the balance of interests and opinions is accurately portrayed. I liked particularly the description of the phase when the British authorities first stumbled into a cheap money policy and then made it a leading article of faith.

I have one difficulty about the discussion of the " Dalton Drive ". Professor Hallowell obviously thinks (p. 45) that a little more courage would have done the trick : " fears . . . might have been allayed, the insatiable preference for liquidity stopped, and 2.5 per cent. consolidated short of monetising the entire long-term debt ". This conclusion seems to be based on a misreading of the Bank of England's position. The difficulty was neither one of capacity, nor of readiness, but of *size* of the marketable long-term debt that the authorities might have been called upon to monetise. The volume of this debt, in relation to normal money requirements, is far greater in Britain than in the U.S. : this is the critical difference between the position of the Federal Reserve System and that of the Bank of England. If the Federal Reserve System had to absorb all such bonds, the figures would indeed be large enough to be spectacular, but a complete and rapid monetisation of the British long-term debt would so multiply the money supply as to give rise to panic fears that would create an embarrassing foreign exchange situation if not internal upheaval. It is because of this position that I have thought that Dalton was trying to fill a pit that was in effect bottomless. The second footnote on p. 44 suggests that the author has not grasped this point.

A speculative discussion of future possibilities ranges very briefly over all (I think *all*) the conflicting factors at work. The upshot is a view that long-term rates in Britain are likely " to remain in the 3 to 4 per cent. range ". My own reservation is that I doubt whether the author has fully appreciated the gathering force of opinion in favour of somewhat higher rates—but he may well be right.

R. S. Sayers.

Foreign Economic Policy for the United States. Edited by Seymour E. Harris. Harvard University Press and Oxford University Press. 1948. xiii + 490 pp. $6. 32s. 6d.

The title of Professor Harris' compendium of the work of twenty-four experts is perhaps a little misleading. For the most part, the book does not expound the policies which the authors consider desirable, but rather explains American policy as it was in the early months of the European Recovery Programme. As such, it displays both strength and weakness. Except to a certain extent in the theoretical section, there is a uniform acceptance of the same " liberal " position. We do not find discussion of what policy should have been, so much as description of what the policy, and the facts lying behind the policy, of the administration in fact were. As such, there is a considerable amount of excellent material in the first four sections of the book, concerning general policy, individual area and country studies, international economic co-operation, and the European Recovery Programme.

Such discussions inevitably date fast. This is especially so in the case of the section on the European Recovery Programme, in which there is little which has not been replaced by more recent documentation. A great deal of the section on individual countries and regions is also rapidly becoming mainly of historical interest. Two sympathetic papers are devoted to Britain: one on Anglo-American Economic Relations by John M. Cassels, and one entitled " Prosperity, Depression and the British External Problem " by Randall Hinshaw. Neither of these papers discusses at all adequately the relationship of the United States with the Sterling Area and the Commonwealth as a whole. Perhaps absence of obsession with Ottawa is a cause for congratulation; nevertheless, the planning of the book as a whole suffers from a blind spot concerning the unity of the Sterling Area.

The other regional studies are devoted to Germany, Japan, Canada, China, Latin America, and the U.S.S.R. All are the work of specialists, and all are reliable and informative. It is impossible not to regret some of the omissions from this section. One cannot help feeling that France and Italy have been somewhat churlishly treated; if Britain deserves two articles plus its share of the section on the E.R.P., one would imagine that Western Europe outside Germany deserves some separate treatment. The other omissions which stand out relate to discussions of American economic relationships with the areas earning a dollar surplus (largely the tropical colonial dependencies) and of relationships with the underdeveloped areas in general. To-day, no doubt, this last omission at least would be corrected.

There remain two sections of more permanent interest, which discuss matters which are less rapidly changing and of more fundamental importance than the position reached by American foreign policy or the economic development of other countries at a particular moment of time. In the section on International Economic Co-operation, there are authoritative articles by M. Camille Gutt on Exchange Rates and the International Monetary Fund, by A. G. B. Fisher on the Fund and the World Bank, and by Winthrop Brown (of the State Department) on the General Agreements on Tariffs and Trade.

To the academic economist and the student, and, one might hope, to those who more directly influence policy, the section whose usefulness will be most permanent is the fifth and last. This is concerned with " Problems of International Equilibrium ", and might well be used as a clear introduction to recent theoretical discussions of these matters. The articles range from the unfashionably rigid orthodoxy of Professor Haberler, to the unquestioned heterodoxy of Thomas Balogh. Professor Hansen succinctly summarises the cost structure parity approach to the meaning of ' fundamental disequilibrium '. Professor Samuelson discusses " Disparity in Post-War Exchange Rates " in terms of the usual elasticity approach, but in a stimulating manner which cannot avoid provoking profitable thought. Dr. Triffin considers exchange controls and clearly says the sensible things that should be said; that they should be exorcised rather than excommunicated.

In all, the final theoretical section has a great deal to commend it. There is little in it that is new; in many cases the authors concerned have expressed much the same views in much the same terms elsewhere. Nevertheless, there is considerable convenience in a collection of reliably authoritative views such as this.

A. C. L. Day.

Monetary and Foreign Exchange Policy in Italy. By F. A. and V. Lutz. Princeton University Press, Oxford University Press. 1950. 45 pp. 6s. 6d.

In a pamphlet of less than fifty pages, Professor and Mrs. Lutz have given us a valuable and clear outline of Italy's internal and external monetary policies between 1946 and the autumn of 1949. Sections are devoted to internal developments, to the balance of payments, and to foreign exchange policy. Four stages are outlined for internal monetary developments: they are the renewed inflation from mid-1946 until September 1947, the firm credit restrictions of late 1947, the period of stable prices and rising bank credits in 1948, and the falling prices and stable monetary circulation of 1949. The policies of the Government are sympathetically interpreted, and the analysis of the unemployment problem should be of interest even to those whom it does not wholly convince.

As far as the balance of payments is concerned, it is shown that in 1946 Italy built up " free " exchange reserves (mainly dollars and sterling), but ran into debt on clearing account. In 1947, she again had a heavy total deficit, and while she paid off her clearing account debts, she lost large free reserves. In 1948, as a result of the ' extraordinary ' surplus, both free and clearing reserves were acquired. In foreign exchange policy, four periods are again distinguished: namely, overvaluation of the lira and multiple exchange rates until the autumn of 1947; then unification of the rates for the dollar; alignment of cross rates to the dollar and a tendency to undervaluation in relation to the pound; and finally the period after the September 1949 adjustments.

The International Finance Section at Princeton is to be congratulated upon this excellent introduction to its new series of " Princeton Studies in International Finance ". Perhaps we can hope that it will soon be joined by similarly useful and reliable studies of recent developments in other European countries.

A. C. L. Day.

The Theory of Fluctuations in Contemporary Economic Thought. By Sidney D. Merlin. Columbia University Press. Geoffrey Cumberlege. 1949. 168 pp. 22s.

The title of Dr. Merlin's work is somewhat misleading. It is not a survey of current thought on the trade cycle, but a discussion of *some* theories bearing on this problem. But provided readers do not approach this work in search of a compendium of business fluctuations theory they will find a good deal of value in it.

The theories summarised and subjected to some critical examination are: " Hicks' Dynamics ", " Keynes' Theory of Employment " and some of the theories subsequently built upon the multiplier, " Swedish Dynamic Theory ", and the " Econometric Theory of the Cycle ". Dr. Merlin's basic thesis in examining these theories is that they do not go nearly far enough in explaining the major business cycle. This is not altogether a surprising state of affairs, for, as Dr. Merlin admits, their primary aim was not always the analysis of this phenomenon. Merlin, however, attributes the shortcomings of them all, bar the Swedish theories, principally to their approach to the subject of fluctuations with tools wrought largely from equilibrium analysis. Much may be said for Merlin's complaints on this score. We must be careful, however, not to lose sight of the fact that many of the deficiencies of the theories and of the methodological approach are alike owing to the intractable nature of the material with which they deal. Dr. Merlin is justified in drawing attention to methodological inadequacies, but he is rather apt at times to give the impression that a revision of methodology will solve our problems.

This should not be taken as meaning that Dr. Merlin tells us that there are many problems unsolved and then leaves us to search for solutions. On the contrary, he draws attention to the possibilities of studying the problem of the trade cycle in the setting of a theory of long-run economic development. There can be little gainsaying that a grave deficiency in the contemporary analysis of the business cycle has been an undue concentration on capital widening; and that even the theories which have dealt with variations in the depth of capital have not given as much attention to autonomous or spontaneous investment as it deserves. The possibilities of a link between the theory of the trade cycle and that of economic change are therefore intriguing. Dr. Merlin has made a few inquiries in this direction. But they are, as he points out, very tentative and thus do not take us very far. The long-term forces he investigates are not likely to induce cyclical movements in investment.

The great part of the book, however, is taken up not with these suggestions and investigations, but with a useful survey and criticism of the theories mentioned above. There are unfortunately some omissions and at least one misprint. A goodly amount of attention is devoted to the very difficult problem of anticipations. Dr. Merlin discusses this problem ably, but at the same time contrives to neglect completely Shackle's many publications on the subject. Likewise, one would have expected that in a discussion of Swedish methodology rather more attention would have been paid to Professor Lindahl's *Studies in the Theory of Money and Capital.* Perhaps also some references to Professor Robertson's work on period analysis would not have come amiss. A misprint occurs in footnote 53 on page 117, where the reference should be to the *Economic Essays in Honor of Wesley Clair Mitchell*, and not those for J. B. Clark.

A. D. KNOX.

Urban Land Economics. By RICHARD U. RATCLIFF. McGraw Hill, New York. 1949. xii + 533 pp. $5.50.

In *Urban Land Economics* Professor Ratcliff surveys the economic problems of the market for building land and relates them to those of the building industry in general, and housing in particular. On all these subjects he has much to say which is interesting. From the point of view of the English reader the book has the additional value of bringing together in one volume data on problems and policies of town planning and housing in the United States. Professor Ratcliff makes no comparisons between the United States and other countries ; nevertheless, any well-informed English reader will be able to do this for himself and will find much food for thought in the process.

The main thesis of the book is that the 'imperfections of the markets' for building land and buildings are the causes of the unsatisfactory character of land development and building in the States and, also, of the extreme instability of the building industry. The term 'imperfections of the market' is used by Professor Ratcliff in a much vaguer sense than is customary among economists to-day. He includes under it *inter alia* not only the non-homogeneous and localised nature of the goods traded, institutional limitations on freedom of transactions and lack of perfect knowledge of current market data, but also the lack of perfect foresight in speculation and the illiquidity and durability of the investment involved. He argues that the 'imperfections' and particularly the last three mentioned, are responsible for a chronic lack of rapid adaptability of supply to demand and, hence, lead to violent alternations between feverish activity and stagnation. Professor Ratcliff has little difficulty in explaining the violence of the boom and collapse in the real estate market in the early 'twenties on these lines. Improvements in the financial organisation of the markets were brought about in the 'thirties by the intervention of the Federal Government, and widespread financial disasters, such as followed the break of the boom in the 'twenties, should, he considers, be avoided in the future. Similarly the development of town and country planning regulations in many areas should help to prevent any re-occurrence of the wilder excesses of speculation in building land. Nevertheless, he views the present building boom in the United States with an apprehension which is understandable after reading his history of the 'twenties. Chapters 8, 9 and 11, dealing with this subject, are perhaps the most interesting in the book and contain, incidentally, a most useful account of the development of Federal policy.

Of almost equal interest are the last two chapters of the book which are devoted entirely to housing problems. Professor Ratcliff's discussion of the futility of relying on houses filtering down from the expensive to the cheaper markets as a main source of supply of houses for the poorest families is of particular value. The inadequacy of this source of supply, together with what he regards as the reasonable and inevitable unwillingness of investors to put their money into working-class houses to let at low rents, lead him to conclude that sanitary regulations alone cannot cure slums. He therefore favours subsidised houses built by public authorities, but only in order to replace houses which have already become sub-standard. Professor Ratcliff suggests no way of augmenting supplies of cheap houses to let to keep pace with increases in the numbers of families, although he argues that the shortage is chronic.

Despite the very substantial contribution that Professor Ratcliff makes to the reasonable discussion of economic aspects of land development and housing, his book is not altogether satisfactory. The inclusion of much technical information, of interest only to elementary students preparing to enter the professions connected with real estate, is partly responsible for the great length and awkward arrangement of the book. This makes the main arguments difficult to follow. He attempts to overcome this by frequent repetition and summaries. Unfortunately, the only result is that of progressively blurring the relative importance of the various influences affecting the real estate markets. One cannot help but feel that if the book had been shorter not only would it have been easier to read, but also that Professor Ratcliff would have found it easier to relate his analysis to his conclusions and to his illustrations. As it is, valuable information and discussion in the book is presented in such a way that the normally persevering reader is likely to find it difficult to assess the validity of the arguments.

MARIAN BOWLEY.

Capitalism and French Glassmaking, 1640–1789. By Warren C. Scoville. University of California Press. Cambridge University Press. 1950. xi + 210 pp. 18s. 9d.

In 1948 Professor Scoville published an extensive study of entrepreneurship and technological change in the American glass industry in the years 1880–1920. He has now taken a considerable step backwards in time, and has examined the origins in Europe of some of the features about the latest manifestations of which he wrote in his previous book.

The author expresses the bold opinion that, from a cultural standpoint, the discovery of glass may have been more significant than that of copper, lead or iron. Again he makes the shrewd suggestion that the growing popularity of glass mirrors after 1500 made individuals increasingly conscious of personal cleanliness. Such illuminating ideas enliven a book which gives many interesting side-lights on the relationship between industrial development and social well-being.

The extensive international connections of the glass industry are well brought out in a chapter on the " Basic Materials Employed in Glassmaking ". Thus the French glassmakers imported kelp from Spain and Sicily. Scrap glass for re-melting was brought from the Low Countries. Such raw materials as red lead and manganese came from Germany, Hungary, Italy and elsewhere. The copper used in making tables and rollers for casting plate glass was imported from Sweden. It is shown how wars disrupted this international trade, and how state regulation not only embarrassed glassmakers when they attempted to tap domestic sources of needed materials, but also limited their freedom to import supplies from foreign countries.

In a chapter devoted to " Technological Evolution " several interesting matters are considered. Some details are given of the changes of furnace design in France necessitated by the substitution of coal for wood as the fuel used. The development of the casting process for making plate glass is noted, an invention for which five different Frenchmen claimed the honour. Bernard Perrot of Orléans presented samples of cast glass to the Royal Academy of Sciences for approval in 1687, and the famous glassworks at Saint-Gobain in Picardy was built in 1692. The author appears to overlook, however, that the Romans were well acquainted with the principles of casting glass, and that what was in question here was mainly a revival of old methods on a larger scale.

In considering the " Growth of Large-Scale Capitalistic Production " the author shows that much the most expensive equipment was required in the plate glass section of the industry. Thus the value of the assets of the Royal Plate Glass Company increased from 180,000 livres in 1666 to 12,456,466 livres in 1779 (the purchasing power of the livre having fallen meanwhile by about 50 per cent.), and by the latter year they were probably equal in value to the combined assets of twenty-five or thirty of the largest factories making other kinds of glass. Mr. Scoville suggests that as regards typical factories the next in size was the works making dark bottles. Most of the French bottle factories operating in 1740 employed from 25 to 35 individuals and possessed assets valued from 60,000 to 120,000 livres, the largest, located at Sèvres near Paris, having a capital investment of about 200,000 livres. Small-scale production continued to be characteristic of the establishments making tableware and green bottles until the end of the author's survey in 1789, an individual needing only 2,000 to 5,000 livres in order to build and operate a small furnace.

On the social side it is shown that in the seventeenth century the absence of a large vigorous middle class in France may have impeded the expansion of glassmaking, for nobles of the sword or robe showed little interest in developing or actively encouraging the manufacture of glass. During the eighteenth century, however, the middle class increased greatly in number, financial power, and social esteem. From about 1700 merchants, bankers and manufacturers who knew practically nothing about the techniques employed in making glass became interested in the production of bottles, plate and sheet glass. They lent the various companies large sums, entered partnerships, and participated actively in the business. As the practical glassmakers remained closely attached to their craft and had a strong tendency to follow traditional methods, this influx of entrepreneurial talent from outside strengthened the glass industry.

L. M. ANGUS-BUTTERWORTH.

Employment and Compensation in Education. By GEORGE J. STIGLER. Occasional Paper 33, National Bureau of Economic Research, Inc., New York. 1950. 77 pp. $1.00.

"This powerful yearning for formal education has given rise to a very large industry, employing a million and a half persons." This statement, from the author's preface, gives an indication of the purpose of this publication. We have been accustomed to read reports on the numbers employed in large scale "extractive" and "production" industries, agriculture, mining, cotton, iron and steel, engineering and such like; we have had reports on transport, but very seldom do we get information on other service industries, particularly the social services. One of the main difficulties in this regard has been the lack of statistical data. The other industries on which attention has been focused have been examined in vast detail over a great many years, because there has been public interest in their working and particularly in the remuneration of their workers, especially where the product has been easily definable. But the teaching "industry" and the teaching profession have largely escaped this kind of public interest. Occasionally, in Britain, one becomes acquainted with the vast sum spent annually on Education, and at times of difficulties in public finances, correspondents in the daily press indicate how easily quite a large number of million pounds can be saved by cutting teachers' salaries by (say) ten per cent.

Mr. Stigler now presents us with an analysis of facts relating to the number of teachers of all grades of education in the United States, their remuneration, the number of students and so on. These data are illuminating. In the first place, it is interesting to note that the author encounters difficulties in obtaining comparative figures over a number of years. In the second place, it is also interesting to note that the teaching profession in the United States is not in receipt of large salaries. This is perhaps not very surprising. The consumer finds it difficult to assess the value of a general education for the rising generation, the services which teachers and workers in the social field render to the community are often given and expected to be given out of a sense of service to the community and unrelated to such mundane matters as the payments of grocery bills. The comparative " safety " of the teaching profession from the storms and tempests of rude commerce are part compensation for the modest scale of living which persons in this profession are expected to enjoy.

The author spends some time in his report on the relative earnings of College Teachers, and independent practitioners in Law, Medicine and Dentistry. He has to take account of the difficulties of such a comparison ; the question of outside earnings enters ; there is the problem of superannuation benefits, relaxation of fees for children and such like. The author also considers the question of the distribution of incomes in these various professions. He compares the general level of incomes with the grade of teaching.

This is a most useful piece of work. The data presented are well set out and the diagrams are useful and clear.

E. C. Rhodes.

Economic Survey of Asia and the Far East, 1949. United Nations. H.M. Stationery Office. 1950. xix + 485 pp. 22s. 6d.

This *Survey* falls into two parts. The first is a review of the main economic developments in Asia and the Far East during 1949 ; and the second is a discussion of factors and problems underlying the region's economic growth. Together these two parts give a useful picture of the economic situation in a part of the world that is attracting so much attention today. Clearly a state of affairs exists that leaves a great deal to be desired. This report shows how much remains to be done even to restore living standards to the low levels of 1939, and also how great are the obstacles—both economic and political—that will hamper plans for development.

Unfortunately, the various chapters of the *Survey* are uneven in their treatment. From some it is possible to obtain a clear idea of the developments that took place during 1949 ; in others it is not easy to discern the wood when in the midst of so many trees ; and into at least one chapter there creeps a curious air of make-believe. Thus from the first three chapters of Part I we can see the principal developments in food and agriculture, industry and mining, and transport. The tremendous tasks that confront the countries of the Far East are plainly set forth here: the pressure of population upon their agricultural resources; their exiguous industrial output, still appreciably below pre-war level; and the perilous condition of so much of their communications. There are other chapters, too, which merit praise for their presentation of an overall picture. On the other hand, the chapters on currency and on banking contain much useful information but remarkably little of it tells us how the region fared in 1949. Would it not be possible to place in a separate section such background information as that on page 129 dealing with the powers of the Bank of Thailand to grant loans and rediscount bills? There is so much detail of this sort in a chapter purporting to deal with developments in banking in 1949 that such changes as did occur are apt to be lost sight of. Then there is the chapter on labour. There are many references to China, but there is no hint of the civil war that was raging in China in 1949. Further, there is a quotation from a labour conference in Peking sponsored by the W.F.T.U. It is a resolution that smacks of politics. Perhaps international bodies have to exercise restraint in these matters, but if the quotation had to be used one might expect at least some discussion of its truth.

For all these shortcomings the general level of the *Survey* is high. It can be no easy task to record economic changes when the data available are so exiguous and unreliable. A very full index considerably enhances the value of this work as a source of reference. Finally there is, in Chapter XVI, a most interesting analysis of the economic plans of the various governments of the region.

A. D. KNOX.

Introduction to the Theory of Statistics. 14th ed. By G. UDNEY YULE and M. G. KENDALL. Charles Griffin & Co. Ltd. 1950. xxiv + 701 pp. £1 14s.

The new edition of this standard work provides the first substantial revision since the eleventh edition which appeared in 1937. A considerable amount of new material appears for the first time, but comparatively little modification has been made to matter already included. Many will welcome the substitution throughout the work of the summation symbol Σ for S. The introduction to regression lines is still presented with X as the dependent variable and Y as the independent; the old notation is preserved by which the numerator in the formula for the correlation coefficient appears as Σxy, thus continuing to snare the third-class man who will treat this as ΣXY in the examination hall. Although the long initial section of five chapters on attributes and classification has been cut to three chapters, only thirteen pages are sacrificed. No other substantial cut is made, although the Chi-squared chart is replaced by a table, and it is a sign of the times that the new generation of readers is no longer directed how to construct the wood, wire, and string model illustrating correlation between three variables.

Valuable sections on rank correlation have been added to Chapter 11, and Chapter 13 on practical problems on Correlation and Regression has been rewritten and provided with up-to-date references. The most valuable addition is a new Chapter 23 on some problems of practical sampling. This draws not only on the corresponding chapter in Professor Kendall's *Advanced Theory*, but also on Dr. Yates' *Sampling Methods*, and on articles by Prof. Mahalanobis. It also includes short sections on systematic sampling, quota sampling, and sequential sampling. A short new chapter is also provided which introduces the reader to the analysis of variance.

The other additions are one chapter on index numbers and two on time-series. These achieve the usual high standard of scholarship and clarity and any criticism of them can only be an expression of personal preference. My suggestion would have been two chapters on index numbers and one on time-series. The problem of constructing index numbers largely consists in choosing the best indicators of that which one wishes to measure; it also consists in reconciling the practicable and the ideal in choosing what to try to measure. It is shown in the L.C.E.S. monograph on the construction of index numbers that the solution of these problems involves theory as well as common sense and their discussion would have fitted well into the plan of this book. Graduation and periodograms would seem to be the strongest candidates for omission in the chapters on time-series: on the other hand, a quicker method for seasonal correction might have been included besides the one actually given which involves the monotonous task of fitting a twelve-months' moving average over a series of years.

The increase of about one-third in the total number of pages is partly due to wider spacing and a clearer lay-out of the type. This has materially improved the whole appearance of the book.

D. G. CHAMPERNOWNE.

Ordo: Jahrbuch fuer die Ordnung von Wirtschaft und Gesellschaft. Dritter Band. HERAUSGEGEBEN VON WALTER EUCKEN und FRANZ BOEHM. Helmut Kuepper vormals Georg Bondi, Godesberg 1950. lxiv + 356 pp.

Walter Eucken, whose sudden death in London in March 1950 is still fresh in our memory, took still an active part in the preparation of this volume which, however, is preceded by a long commemorative essay on Eucken by his friend and co-editor, Franz Boehm. Sadly enough it has in the meantime received a further commemorative accent by the death of Leonhard Miksch in the summer of 1950, which deprived the University of Freiburg in Baden of yet another of its outstanding members.

The volume opens with a prologue by Franz Boehm, " Die Idee des Ordo im Denken Walter Euckens ", in which he develops the threefold meaning of this conception for Eucken and a circle of friends and collaborators for whom he in a true sense of comradeship was *primus inter pares*. Ordo is the maxim of a legal and economic policy ; it is the regulating idea of a programme of scientific work ; and it characterises an intellectual climate (die Lebensluft) in which this group feels at home. Boehm explains the reasons why Eucken from a variety of possible economic systems decided for a competitive economy combined with the safeguards of a legal order. He shows how Eucken's spiritual inheritance and his intuitive capability to extract from a complicated and even turbulent experience the decisive elements, guided him to a re-statement of certain truths which had been obscured by false and dogmatic identifications. As such may be mentioned the thoughtless combination of liberalism with laissez faire, of socialism with a centralised administrative machinery which lead to the dangerous alliance between Marxism and the anti-liberal forces of our age. In contrast to these errors, Boehm stresses the new importance of the eighteenth century's conception of the pre-established harmony of a market economy (die dem Tausch . . . innewohnende Ordnungsstruktur). But in this discussion he is perhaps carried away a bit too far by another eighteenth century category, enthusiasm, and seems at least to forget that constant watch is needed in the struggle between individual freedom and political organisation. Leonhard Miksch's essay on " Die sittliche Bedeutung der inneren Koordination " (pp. 29–73) may be read in this connection as a useful corrective, with its juxtaposition of Rechtsordnung and Verwaltungszwang, with its incisive sociological analysis of the functions of justice and *caritas*, and with a stimulating revival of certain ideas by Schopenhauer whose importance in spite of Nietzsche's plea has been unduly obscured by Hegel and his Marxian mask. But we must not create the impression that this third volume of *Ordo* is mainly philosophy and sociology. There is a last contribution by Eucken himself : Technik, Konzentration und Ordnung der Wirtschaft (pp. 3–17), in which he lays in his most brilliant manner some old ghosts haunting the scene of the so-called decaying capitalism. There is no unbreakable correlation, he shows, between modern technique and the decline of competition, no necessary bond between big manufacturing units, monopoly and centralised planning. Other articles and excellent reviews amplify these themes and problems without exhausting them. On the contrary : this new volume shows that Ordo is a living thought and that more surveys will be needed for its constant realisation.

E. ROSENBAUM.

Nationalised Industry. No. 1: Accountability to Parliament. 1950. No. 2: *The Powers of the Minister.* 1951. Acton Society Trust. 33 and 20 pp. 2s. 0d. each.

These are the first two of twelve short studies of nationalisation to be published by the Acton Society Trust. They ought to be taken together because under the British system of government accountability to Parliament can only be in respect of the powers of a particular minister. We have so far avoided the American system of having public boards directly answerable to Congress. The authors of these studies do not always appear to appreciate the fact. In their first pamphlet, which should have been put second in order, they appear, on occasion, to want Parliament to control these industries in some direct manner and apart from the powers of the minister. But the approach is rather muddled and in the end it is not clear what the Trust want to happen except that they would like more attention to be given by Parliament to the organisation and policies of these industries.

They would have improved their chances of finding a solution had they started by analysing the problem from the viewpoint of both management and the public. If we want full public control and ministers with a clear responsibility for the actions of a particular industry we do not want the public corporation, the ordinary ministerial department is the thing. The public corporation was developed to give us the best of both worlds—public accountability and private management. The studies show little or no appreciation of the needs of management.

They would also have gained by examining the parallels between the joint stock company and the public corporation. For the success of the former and the growing divorce between management and the ownership of capital were undoubted influences in the development of the latter. But the shareholders' meeting usually has a simple test—the dividend declared. If there were such a simple test for the nationalised industries the task of control would be easier. But there is no analysis of this problem. It is not even clear what the control is intended to achieve.

The pamphlets would benefit from a liberal dose of Lord Acton's scholarship and historical perspective, and rather less responsiveness to contemporary discontents.

D. N. Chester.

The Leeds Chambers of Commerce. By M. W. Beresford. Leeds Incorporated Chamber of Commerce. 1951. viii + 192 pp. 10s. 6d.

This handsome little book marks the centenary of the present Leeds Chamber of Commerce. One short chapter gives an account of an earlier Chamber of the late eighteenth century; the rest is a brief history of the existing Chamber as revealed by a study of its minutes.

Mr. Beresford announces in his Introduction his intention of not attempting a detailed chronicle of the affairs of the Chamber, but of making a selection from the available material in order to treat a few leading topics. By adopting this method he has earned the gratitude of readers, for it has enabled him to give his exposition an admirable clarity. The topics have been well chosen to show what matters constantly preoccupied Leeds businessmen. There are accounts of their attitude to railway monopoly, of their dealings with labour, especially through a voluntary Board of Conciliation, of their reactions to foreign competition and to the changes wrought by world war, and of their views on state interference. The abandonment at many places of a chronological method of exposition has not prevented the author from revealing a process of development. Here indeed is shown a local reflexion of some major national changes in economic opinion, of which the most outstanding is doubtless the disappearance early in this century of unquestioning acceptance of free trade.

The chief weakness in Mr. Beresford's selective method is that so often it has led him to present the Chamber's conclusions without the arguments by which they were reached. On some points this seems to make the Chamber appear a rather less sensible body than in fact it probably was. In some passages also the thread on which the illustrations are strung becomes rather tenuous. This is one thing which suggests that the book may have been written in a race against time. Occasional infelicities of style and a few slips support this impression. Lord Rosebery, who in life was very sensitive on the point, is probably turning in his grave at the fruity mis-spelling of his name in both text and index.

W. ASHWORTH.

The Economics of Pulp and Paper. By JOHN A. GUTHRIE. The State College of Washington Press, Pullman, Washington. 1950. xi + 196 pp.

Most studies of particular industries start with a supply of imported raw material, prices and quantities being given by the conditions of international trade. Here Professor Guthrie is able to give us a picture of the interlocking effects on an industry of the location, transport and availability of a diminishing raw material.

The continuing depletion of the mature virgin forests, on which the American pulp and paper industry was based, has had three results. There has been the expected increasing dependence on imported supplies, especially newsprint. But there has also been a shift to the use of poorer and remoter forests—an adaptation to harsher conditions seldom considered in recent jeremiads. Finally, there has been investigation of possible alternative fibre sources: hardwood, bamboo, waste paper, rags and straw. Professor Guthrie considers that even if there is a fall in the supply of wood, the higher value of pulp and paper products will attract timber from less remunerative uses and will enable the output of the industry to continue indefinitely at the present rate, though at somewhat higher costs.

The author has made his most strenuous efforts in discovering the inter-relationships of raw material location, market location, freight rates and cost of manufacture. He makes use of statistics collected during the war by the O.P.A., supplemented by his own extremely informative calculations on the basis of confidential data from producers, trade associations and trade unions. We learn that while there is relatively permanent freight rate discrimination among *types* of products, the appearance of new producing regions, or of new products, causes a reduction in the appropriate rates charged to older areas. On balance, it seems that freight rates are as much the effect as the cause of the location of pulp and paper mills within the United States.

The rest of the book is devoted to labour problems and pricing policies of the industry. There is an excellent description of the basing point systems in force, and the impact of foreign supply on such price structures. The discussion of price-setting proper is rather perfunctory, though we gather that the industry is a good example of a classical oligopoly situation, and that it has several times felt the wrath of the anti-trust authorities. Some doubt is cast by the author on the theory of profit maximisation, as far as this industry is concerned.

Demand for the product is increasing rapidly, for industrial and packaging uses more so than for newsprint and book papers. The author has boldly projected U.S. *per capita* consumption for all uses to 1955, and finds a tendency to substitute pulp products for timber, glass and metal in many industries.

Though we may regret that he was not able to probe farther into the fields of price uniformity and market leadership, Professor Guthrie has earned our gratitude for his excellent report on demand, raw material and labour supply, and market structure in this industry. It is particularly germane to studies of the economics of raw materials, and of inter-regional competition in a staple commodity.

A. D. SCOTT.

Labour-Management Co-operation in France. International Labour Office, Studies and Reports, New Series No. 9. Geneva. 1950. 237 pp. 7s. 6d.

The trade union movement in France, though powerful despite its internal ideological differences, had not before the war attained that integration in the social fabric of the nation which had already become a marked feature of Britain and the Scandinavian countries. The part played by working-class organisations in the Resistance Movement during the war led to a new conception of the status of labour, and plans were made to ensure that, after the liberation, workers would have the right to be consulted on all matters of social and economic importance.

The preamble of the Constitution of the Fourth Republic officially expresses the fundamental principle of participation by occupational organisations in the determination and administration of social and economic policy. A National Planning Council, National Economic Council and National Labour Council were established, all on a tripartite basis, government, employers and trade unions, to advise the Ministry and Parliament. The trade unions were given a substantial share of the appointed members of the Boards set up to run the industries nationalised ; and in all industries the workers were given the legal right to elect delegates (shop stewards) and works committees to look after their interests.

This Report is a factual survey of this post-war development.

As such, it is excellent. It gives precise details of the composition, functions and legal powers of the many councils and committees established, but, unfortunately, it gives little insight into how in practice the machinery is actually working. From the brief evaluation of the experience of the works committees it appears that they have been successful "wherever the heads of the undertaking and the staff have shown good will". A similar conclusion could be drawn about the voluntary joint consultative committees in Britain. Certainly no startling results have been achieved from the endowing of the works committees in France with legal powers. The need to train the representatives of the workers to understand the technical and financial information they have the right to obtain from management, is stressed as an essential condition for the success of works committees, and the trade unions have launched, with the assistance of the Minister of Labour, a number of training schemes. The trade unions are satisfied that the works committees have a considerable value ; the link between the unions and the works committees is established by the unions having the right to nominate candidates for election, and to appoint observers to the committees. However, if no union organises in an undertaking, or the union candidates do not receive 50 per cent. of the votes to be cast, then an election with non-union candidates may take place. It would be interesting to know whether the existence of non-union works committees is a factor of any importance in the decline of the strength of the trade unions in post-war France.

Up to the end of 1949 basic wages were fixed by the Government. Since February 1950 the Government has permitted collective bargaining in the private sector of the economy, but retained control over the settlement of wages in the public sector. To facilitate a return to collective bargaining a Higher Committee for Collective Agreements was established by statute in December, 1946. This body, also a tripartite one, has wide advisory powers and regulates the conditions under which collective agreements are negotiated. It may act as arbitrator in case of disputes at the request of the Minister of Labour, or the parties concerned. Under the Act of February, 1950, which regulates collective agreements, the Minister of Labour is empowered to convene joint commissions of employers and trade unions to negotiate national agreements for each industry. All agreements reached must include, inter alia, provision for the free exercise of trade union rights, minimum wages for the various categories of workers employed and conditions of employment. This law also established a new Higher Committee for Collective Agreements which is authorised to advise the Minister of Labour on the issue of Orders to make agreements, or sections of agreements, legally binding.

The legal regulation of collective bargaining in France is in part a reflection of the weakness of French trade unionism and also of the continental desire to have public rights and duties defined by the law. How far this new departure will add to the strength of the trade union movement, which remains a voluntary organisation, and improve industrial relations, has yet to be seen. Unfortunately, the I.L.O. Report was completed before this new development had come into effect and therefore it was not taken into account. The main handicap under which the French trade union movement has suffered since the end of the war has been internal political dissension and the attempt by the Communists to use the trade unions as a political weapon. It is a pity that the authors of the Report felt unable to comment on the effect of these divisions on industrial relations.

B. C. Roberts.

Economic Conditions and Banking Problems. A series of Lectures delivered at the Third International Banking Summer School, Saltsjöbaden, September, 1950. The Swedish Banks Association. 1950. 281 pp.

It is practically impossible in a short review to do justice to a collection of essays like those assembled here. An impressive array of international talent has been brought together and the performance is at a level we have come to expect from these Summer Schools. This volume is perhaps of special interest to the student of economics, since it contains discussions of the problems of many European countries which do not normally enter his field of vision ; he will also gain much useful information from the lectures on the organisation of banking in several of these countries.

The essays can be arranged conveniently in four groups. The first group contains two lectures of general economic interest about current financial developments by experts in this field, i.e. Mr. McKittrick on

" Current Problems in the Field of International Finance " and Mr. Jacobsson on " European Monetary Problems ". Mr. McKittrick, of the Chase National Bank, discusses economic relations between the United States and Europe. He looks somewhat nostalgically at the policies adopted after the first world war and comes to the conclusion that " the problem of external stabilisation of a currency is that of checking internal inflation and freeing markets from control ". His dicta on American lending and tariff policy might well be nailed up on the walls of Congress and the State Department. Mr. Jacobsson, of the I.B.S. and the E.P.U., also addresses himself to the problem of the dollar shortage. He is something of a theologian in his belief in the efficiency of the free price mechanism applied to international trade, and complete acceptance of his creed is rather difficult. His essay contains a discussion of the impact of rearmament on the European economy.

In the second group of essays Professors Heckscher and Montgomery discuss evolution and current problems of the Swedish economy, and Messrs. Monick, Crick, Hartogsohn, Fieandt and Lindebraekke deal with the economic and monetary problems of France, Great Britain, Scandinavia, Finland, and Norway. We have here an opportunity, not often to be found, to compare policies adopted by these countries to overcome essentially similar difficulties. It is soothing to turn back after that to Professor Heckscher's lecture and to observe that the Swedish economy at least has always managed to adjust itself to changing conditions.

General banking problems are the subject-matter of a third group of four essays. Mr. Thunholm discusses " Recent Trends in Commercial Banking ", comparing the change in the structure of bank balance sheets since 1930 in the United States and Britain with the somewhat dissimilar experience in Sweden. Changes in organisation and methods of operation of central banking in various countries are outlined by Mr. Rooth, and Mr. Melin debates the problem of centralised versus decentralised control in branch banking. Of particular interest is Mr. Frick's lecture on " Export Credit Insurance ". He sketches the development and the methods of operation of a relatively new specialised service of growing importance, which deserves greater attention by economists.

The last group comprises three essays by Messrs. Abs, Schæfer, and Ahren, dealing with some special aspects of banking in Germany, Switzerland and Sweden respectively. It is a pity that while Mr. Abs discusses at length the problem of German commercial banking capital, he devotes very little space to an appraisal of central and commercial banking policy. Mr. Schæfer's lecture provides us with the unusual picture of an economy attempting to stop a fall in interest rates. Finally, we have Mr. Ahren's interesting essay on the "Lending Activities of the Swedish Commercial Banks ", outlining fields and methods of investment.

It has been possible to do little more than list the subjects discussed in this volume. We must be grateful to the Swedish Banks Association for reprinting these lectures and thus making them available to a larger audience.

James Lanner.

SHORTER NOTICES

De Cobb-Douglas Productiefunctie. By B. H. van Dongen Torman. Rotterdam. 1950. 83 pp.

Discussion of the Cobb-Douglas production function falls naturally into three parts: (1) The statistical material used; (2) the statistical methods used and the significance of the results; (3) the theoretical implications. The bulk of this doctor's thesis is concerned with the last of these three aspects. In particular it provides an elegant restatement of the conditions which must be fulfilled if the rewards to the factors are to equal their marginal products and if the distribution of income between labour and capital is to correspond to the ratio of their exponents.

British Economic History since 1760. By S. G. E. Lythe. Pitman. 1950. viii + 219 pp. 15s.

Mr. Lythe's work probably does not differ much in quality from the average standard of other short text-books of his subject. It is devoid of literary merit and its structure is somewhat disjointed; but it scores over some rival publications by greater general reliability and, on some points, greater perspicacity. It is an extreme example of "scissors-and-paste" history but the scissors have, on the whole, been applied in well-chosen places. By itself it will provide only part of the foundation needed by a student new to the subject, but it gives valuable guidance on supplementary reading.

Recent Trends in India's Foreign Trade. By R. N. Poduval. Premier Publishing Company, Delhi. 1950. 83 pp.

Mr. Poduval's unassuming little text-book, which brings the story of the post-war trend of India's trade down to the spring of 1950, is quite admirable. It is well-informed (for the rest of the world, as well as for India), clear, concise and surprisingly "meaty". The author's statements of the monetary and other economic problems confronting India and of the choice of policies open to India—e.g. in relation to devaluation and the food situation—are excellent. One suggestion may be made: i.e. a rather fuller explanation might be given of the confusing and incomplete official trade accounts, which, unless very carefully interpreted, are apt to be misleading.

Ingrade Wage-Rate Progression in War and Peace. By SAR A. LEVITAN. Clinton Press Inc., New York. 1950. 134 pp. $2·50.

This monograph investigates some problems which arise in the field of collective bargaining when plant wage structures are based on job evaluation and a series of rates established to compensate for special skills, initiative, length of service or some other meritorious factor. During the period of war-time wage control the establishment of multi-rates round the basic job grades were a headache for the National War Labour Board. The formulas adopted by the N.W.L.B., which are examined here, are of considerable interest, and illustrate the difficulty of achieving a satisfactory national wages policy. So far little attention has been paid in this country, either by employers or trade unions, to the rationalisation of wage structures on the basis of careful job evaluation, though merit money is widely paid. Should job evaluation spread from the few firms which are making use of it here and it ought to be extended in the interest of efficiency and fairness, then the trade unions would be forced to take account of the development, and the same kind of problems as those examined by Mr. Levitan would arise.

Industrial Finance in India. By S. K. BASU. Second edition. University of Calcutta. 1950. xviii + 454 pp. Rs. 12.

Against the background of experience in various other countries, Dr. Basu has considered the means of financing industrial projects in his own. His study covers as sources of industrial finance the banking system, the managing agents (an institution which in India has played an interesting and important role), various experiments in State aid, and the new specialist institution—the Industrial Finance Corporation—set up in June, 1948. The book concludes with a brief critical review of the operations of the I.F.C., though obviously it is too early as yet to offer more than an interim judgment. To readers in this country, chief interest will attach to the chapter on Managing Agents (pp. 143–169), since available references to this institution are few.

Die Preispolitik der Schweiz waehrend des ersten Weltkrieges. By J. J. SENGLET. A. Francke A.G. Verlag, Berne. 1950. 298 pp. S.Fr. 18.

After an analysis of the various causes of inflation and of the factors which led to the rise in prices during the first world war, the author gives a detailed account of Swiss economic and monetary policy in that period as well as a comparison with the policies of 1939–45. He shows that though external factors in 1914–18 were more favourable, the success of price and other control in the latter period was greater not only because of the lessons which had been learned but also because world economic policies in the inter-war period had conditioned both governments and the public to the imposition of controls. It becomes evident that much can still be learned from the experiences of the second world war and, though this period is dealt with only briefly, the book contains a great deal of useful background material.

A Handlist of Sussex Inclosure Acts and Awards. By W. E. Tate. Published jointly by the Clerk of the West Sussex County Council, County Hall, Chichester, and the Clerk of the East Sussex County Council, County Hall, Lewes, in collaboration with The Sussex Archæological Society. Oxford University Press. 1950. 47 pp. 2s. 6d.

This valuable pamphlet extends Mr. Tate's already formidable documentation of Inclosure. Its main purpose is to provide a complete list of all Sussex Inclosure Acts and of Inclosures under the General Acts. The lists distinguish between the acts including, and those excluding, open field arable and give details of the acreage inclosed, the date of the award and its place of deposit or enrolment. There is also a short list of Inclosures by private agreement of which formal, written record still exists among the county records.

Mr. Tate also performs two very useful bibliographical services: he provides a critical summary of the sources for the statistics of eighteenth and nineteenth century Inclosure, and gives a list of all the General Inclosure Acts from the Statute of Merton to the Act of 1899.

The evil tradition of approaching English agricultural history through Inclosure has been so firmly established by the estate agents and their critics that the hedge has obscured the cultivations in the field. Perhaps Mr. Tate will soon increase our debt to his painstaking labour by adding to this study of Sussex Inclosure an account of the county's farming?

Books Received

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Monopolistic Competition Revisited[1]

By Edward H. Chamberlin

The main part of this paper will be devoted to a reformulation of the theory of monopolistic competition. It might be regarded as an indication of how I should develop and present the theory if I were doing it all over again today—in 1951. The underlying principles remain the same; but the order of development in building up the structure is different, and there are a number of shifts in emphasis designed to avoid the many errors in interpretation which have grown up and which have become current in the literature. A second brief part will be devoted to a statement of the difference between the theories of monopolistic and imperfect competition.

The theory which I propose does *not* deal with a particular market form, as has been supposed. Its subject matter is very broad. In *includes* all monopolies and monopoly elements in the economic system. It likewise includes all competition, if those rare cases of pure competition in the market structure may be regarded as special cases where the monopoly elements are zero. It is a blending of two theories, *each* of which has been developed in economic analysis under certain perfected conditions. It is thus not a theory of " imperfections " in any sense, but a *general* theory, designed to replace that of generalised pure competition (of Marshall or of Walras, for instance) as a point of departure and as a basis for the analysis of the entire economy. It has no particular relation to micro- as compared to macro-economics, since it deals with the entire economic system in which both of these types of theory have their being.

Let us begin our analysis of the structure of the economy by looking briefly at the essential unit of which the structure is composed, namely the firm. It has received a great deal of attention in recent years—Professor Hicks has commented *ad nauseam*—but I think a great deal of attention was needed in order to restore the balance as against an earlier long period during which it received hardly any at all. In any event, it is our economic atom—often a rather big one—and, like the atom in physics, it is fundamental and we shall always need to know more about it. For our purposes two aspects are particularly important—the conditions of cost under which it operates, and the conditions of demand for its product which it faces.

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[1] Substantial portions of this paper have been given in lectures in several European universities in the spring of 1951.

The "firm" may be as small as a single person or a family. Or it may be a giant corporation, highly articulated, with many and scattered physical plants. Whatever its size, the firm has overhead costs in the short period during which some of its factors are fixed, and because of these fixed factors its short-period cost curve is U-shaped, by reasoning with which we are all familiar.

For long-run problems all factors can be varied; and particularly in planning an enterprise, before any commitment has been made at all, it may be set up on any scale whatever. Here is where economies of scale properly speaking appear, and since an economic structure is mainly the product of long-run forces, the matters here considered are particularly important for our purpose. Again, for any existing set of technical possibilities, the curve of average unit cost as a function of output appears to be U-shaped. Greater aggregates of inputs (including plant along with labour and other variable items) in general make possible greater specialisation and in particular the use of superior technical equipment and methods. During this phase unit costs are falling, and the phase may go on for a long time. But it seems certain that sooner or later increased complexity and cumbersomeness of organisation, with controls mounting geometrically as size increases, will turn the cost curve up again.

It is of the utmost importance to recognise that efficiency is thus a function of *aggregate* resources, and in the same sense that utility is a function of *aggregate* supply. The assumption that resources are infinitely divisible no more destroys this functional relationship than does the assumption that a consumers' good is infinitely divisible destroy the law of diminishing utility. I have dealt at great length with this matter elsewhere,[1] and in particular have pointed out the purely tautological character of the prevailing definition of divisibility to include, as it generally does, the negation of economies and diseconomies of scale. The importance of the issue for our immediate purpose lies in deciding upon the answer which is to be given to the question : " What kind of an economic system would result under the theoretical assumption of perfect divisibility ? " Mr. Kaldor is fond of saying that " Where everything is perfectly divisible, and consequently economies of scale completely absent, 'perfect competition' must necessarily establish itself solely as a result of the 'free play of economic forces' ",[1] and this proposition (or some similar one) is widely held. It is probably the basis, consciously or unconsciously, of the view which lingers on in many quarters that economic theory itself is simply the theory of perfect competition. But the conclusion is contained in the tautological definition of divisibility by which the firm is eliminated from the picture. We are merely being told that if there are no economies of scale there will be no economies of scale, and hence perfect competition, whereas what we want to know is : what kind of an economic structure will result if there *are* economies of scale ? It is quite impossible to show (without assuming it) that perfect divisibility of factors eliminates economies of scale. The correct statement is therefore that " where everything is perfectly divisible, economies of scale remain and, in a world of human beings having diversified tastes, the free play of economic forces would necessarily establish monopolistic competition". This, and not perfect competition, is the true underlying structure of theory.

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[1] "Proportionality, Divisibility and Economies of Scale," *Quarterly Journal of Economics*, February, 1948 (see also *ibid.*, February, 1949), reproduced as a new Appendix B in the sixth edition of *Monopolistic Competition.*

There will, of course, be the greatest variety between different firms in the system as to the details of their U-shaped cost curves, and in particular as to their most efficient outputs. All that I have said so far is that there *is* a most efficient size for the production of any particular product with any given set of technical possibilities. This variety (ruled out by the *tautological* definition of perfect divisibility) is of the utmost importance, as will appear presently, in defining the structure of the economy which it is our task as economists to analyse.

Let us turn to the conditions of demand facing the firm. Under the picture of the economy given by the theory of pure competition, with theoretically homogeneous products and large numbers in each market, these conditions were so simple that they did not require analysis: the demand was perfectly elastic at the going price. Under such conditions, of course, there would be no advertising or selling effort, since if any amount could be sold freely and automatically at the going price there would be no point in spending money to persuade people to buy it.

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[1] "Market Imperfection and Excess Capacity," *Economica*, February, 1935, p. 42 (and elsewhere).

But we have now to take into account that there is actually a great diversity of products, with each seller producing a product or products of his own, different in some degree from those of others. Such differences are embodied in technical, chemical or other qualitative aspects of the product itself (in the narrow sense), including even its name, and also of the conditions under which it is sold, such as the personality of the proprietor and salespeople, and convenience of location, which latter involves time and trouble in retail problems, money outlays on freight charges in manufacturing.

In trying to get this type of problem clearly in mind a good first approximation is to think of an abstract "model" in which a population of buyers is distributed fairly uniformly over a spatial area, and the sellers of a product, homogeneous except for the spatial aspects to be considered, and offered initially by all at the same price, distribute themselves about the area in an attempt to make sales by appealing solely to the convenience of as many buyers as possible. The result would evidently be a fairly uniform distribution of sellers over the same spatial area, each one with a "market" consisting of those buyers located nearest to his place of business.

Buyers, we have assumed, prefer to buy conveniently; but any seller may, by lowering his price, enlarge his market area by drawing in buyers who are willing to go a little further in order to make the saving involved. Similarly, if a seller raises his price he will lose some customers on the edge of his market but will still retain those nearest to him who would rather pay the higher price than make the trip to a more distant seller. Each product in our example is differentiated spatially, and we see at once that one result of differentiation is that the elasticity of the demand curve is (not inevitably, but generally) finite instead of infinite. Each seller has a local monopoly based upon his location, yet he is surrounded by competitors. Hence the paradoxical expression " monopolistic competition ". His demand curve has a downward slope whose steepness will depend upon how highly people value the unique elements of his own product (in our example, his convenient location) as compared with the available substitutes.

If we now recognise that the population, instead of being distributed uniformly, will be most unevenly scattered about, and heavily concentrated in some areas, we have a much closer approach to reality. Since their locations must include not only their homes but their travels as well, there will be heavy concentrations where people work or travel on the way to work, where they shop, at the intersections of important streets, etc. In such places, shops will be larger, or more numerous, or both. Of course in all this there is mutual adaptation, action and interaction, and the picture could be developed much further in terms of different types of activity in different types of concentrations, etc., if space permitted.

Let us now make use of our spatial example in order to approach still closer to reality by admitting all other types of differentiation. We may speak of economic space instead of literal space, and conceive of buyers distributed symbolically throughout a multi-dimensional area containing all the various aspects of products (in addition to convenience) which have already been mentioned. In the same way as with literal space, producers are distributed throughout such an area, and although their products may be alike in some respects, they remain different in others. Thus two restaurants located next door to each other in literal space will serve very different food ; a particular branded product, in itself identical in all shops, will be differentiated by the surrounding conditions in the shops themselves, by spatial separation, etc. Concentrations of buyers will now include not only their proximity in literal space, but in all other relevant aspects as well.

Tastes exist or are developed for particular products ; thus we have " concentrations of population " around the *Digest* type of magazine, around automobiles with 360° of window glass and around movies (cinemas) with happy endings. Any successful product is likely to be imitated at once because its success indicates a following, in other words, a concentration of buyers. Mass-produced goods must be on a price, *and hence a quality*, level to appeal to low income groups, because it is here that the population is concentrated on the income scale. And so we could multiply examples.

A final step in this development is to introduce the advertising and sales effort for which monopoly is a necessary, though not a sufficient, condition. To return to our spatial example, let us imagine that people for some reason were not sure of where the shops were located, or even of where they themselves were located. They would then be receptive to all kinds of information, and of course, misinformation, as to how these matters stood, and markets could be expanded or contracted through the efforts of each seller to inform, to misinform, or otherwise to persuade buyers that the distance involved in trading with him was the shortest. This seems to be pretty close to what happens in the more complicated reality of multi-dimensional product diversity. If people knew exactly what products were available, at what prices, what they were like and what wants they would satisfy (in other words where they were located in economic space), and if they knew where they themselves were located, in the sense of what they wanted and how badly (in other words, if they knew their own minds), there could be no advertising. Such conditions would rule out selling effort, *but* their absence would not admit it unless monopoly too were present. In other words, the utilisation of economic resources to influence demand, necessarily excluded from a theory of pure competition, finds its place at last in the more general theory of monopolistic competition. Selling costs have always been an integral part of the theory.[1]

To sum up, the demand for a firm's product under monopolistic competition is a function of at least three variables : (1) the nature of the product itself, which might be conceived as its location in economic space, (2) the price, and (3) the selling outlay.

Much has been said in defence of the assumption of generalised pure competition by reason of its simplicity, determinateness, etc. It is of interest therefore to note that it is simple in good part because it rides rough-shod over the firm, either assuming it away entirely or arbitrarily assuming it to be small[1] in order that there may be a large number of sellers for each product. Yet if we are to have any respect as scientists for the economic system which it is our duty to explain, the correct procedure would seem to be not to assume pure competition and then to bring the firm into line by Procrustean methods, but rather to build up the system from the firms which compose it, discovering from the facts what assumptions are appropriate as to competition and monopoly, and therefore as to structure. It is *possible*, of course, that even though, for some particular product, the most efficient size for the firm is large, the aggregate demand for the product in question will be so much larger that the requirement for pure competition—a large number of sellers for a homogeneous product—may be realised. But this appears rarely if ever to be the case in fact. In general the economies of scale for individual firms, combined with a demand for diversity in the output of the system, result in one producer for each product, with often a complicated set of oligopolistic relations between them. This is a far cry from pure competition; and even to define what pure competition would be like in such a situation for purposes of comparison becomes so highly arbitrary as to be meaningless.[2]

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[1] Professor Stigler, in his recent visit to the bier of monopolistic competition, has stated : " I pass over selling costs, since my subject is monopolistic competition, not the economics of Professor Chamberlin." (" Monopolistic Competition in Retrospect " in *Five Lectures on Economic Problems*, p. 19, note 3). Yet he also holds the peculiar view that the phenomena of our subject are to be attributed entirely to " consumer ignorance " (cf. my review of *The Theory of Price*, *American Economic Review*, June, 1947, p. 414), which makes one wonder why he (of all people) should rule that the analysis of advertising does not belong here.

Some obvious cases where superiority of large size (together with other considerations) combined with a limited demand results in a single producer have come to be classified as " natural " monopolies. These are the public utilities: water, gas, electricity, street railway companies, etc.; but here it is instructive to note that what we really have is a rather neat case of product differentiation, again in terms of space. There is a large aggregate demand for electricity in the United States, for example, but the population is widely dispersed over the country, and furthermore, it is highly concentrated in numerous urban centres. The result is very generally " local monopoly ", with the size of the producing unit adjusted to that of the concentration it serves.

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[1] As does Professor Knight, *Risk, Uncertainty and Profit*, p. 98.

[2] I must plead guilty myself to having done what is here held to be " meaningless ", but in partial extenuation may point out that the brief comparisons in *Monopolistic Competition* between monopolistic and pure competition are entirely polemical, having for their purpose only to demonstrate that the theory of pure competition *may not be applied* where monopoly elements are present. (Cf., for instance, p. 116, last paragraph, and p. 174, top). It should be pointed out that Mrs. Robinson's comparisons between monopoly and competitive output and between monopoly and competitive demand for labour (*Economics of Imperfect Competition*, Books IV, VIII), although open to a similar objection in so far as they involve " perfect competition", are not the same thing at all. They are comparisons between a monopolised *industry* and a perfectly competitive industry, preparing the way for welfare conclusions in Books IX and X.

But " natural " monopolies in this sense are everywhere. Cement, for instance, although not perfectly homogeneous in our sense, is very close to it with the conspicuous exception of the same spatial factor, given a peculiar importance in this case by the great weight of the product and the relatively high cost of its transport. Here again we have local monopolies by spatial differentiation, and each seller in close competition with a comparatively small number of others—a situation which no amount of legislation or anti-trust prosecution can change. It is not meant to infer that nothing whatever can be done about price practices in a case like this —only that whatever is done must fully recognise the elements of monopoly which are built into the economic structure of the industry.

The size of the firms in different areas and subdivisions of the economy will evidently depend in a complex way upon the nature of the products which get produced, upon the shapes of their production and selling cost curves, and upon the position and elasticity of the demand curves, as determined in part by selling outlays. Most of these matters are already familiar and I shall not develop them further here.

There is one matter, however, which urgently requires comment, and that is the question of " entry ". Monopolistic competition implies lack of free entry in the full sense of freedom for another firm to produce the identical product, since the output of each firm has at least a minimum of individuality of its own. But the possibility of producing *similar* products can be such that the multiplication of firms in any momentarily profitable area of economic activity will reduce profits to the minimum necessary to attract and maintain entrepreneurs in the field in question. In this case it *appears* not to matter whether entry is assumed free or not. But it does matter, because, although the situation *can* be thus, often it is not. The reason may be put technically in terms of concentrations of preferences for the products of particular sellers in spite of the efforts of others to come close to them. Such factors are universal, but seem to be especially conspicuous in the whole field of trade-marked products, as well as in the areas where personal qualities or peculiarities count heavily, as with lawyers, artists, athletes, textbook writers, etc. Every seller will as a matter of course attempt to maintain his own demand by preventing others so far as possible from locating economically near him, and the " prevention of such prevention " is one of the most important elements in a public policy designed to keep monopoly under control. In some cases, notably that of the public utilities, exclusive franchises serve to preempt an area of activity for a particular company, whose prices and profits are then subjected to control. Such preemption has often been necessary either without control or with only a minimum of control, as an inducement to secure the development of some particular industry or natural resource. This policy has been important notably in the development of the world's railroads and in colonial exploitation. The granting of patents for a limited period is a familiar example of a policy designed to promote general technical advance by such methods. From these examples it seems clear that it is not a self-evident principle of public policy to eliminate all such impediments to entry. Indeed they could not be completely eliminated, any more than all men could be made equal in ability or merit by legislation.

Let us pass on to the question of relationships between firms—" external interdependence ", as Triffin has called it.

The recognition of interdependence in the sense here meant immensely complicates the picture so far drawn. What is at issue is whether or not a seller, by his policies, has any effect upon the policies of others which in turn might react upon his own situation. In general he has, because in general he is in close competition with only a few others, as must be clear from our earlier spatial example. Where he is in competition with only a few others, any move he makes will have an appreciable effect upon them, and perhaps cause them to make a move which in turn will affect him.

What is perhaps the simplest example of this type of mutual dependence may be briefly called to mind. Suppose that a seller makes a price cut and gains thereby a substantial amount of business. If his gains come mostly from a few others, this means that they are suffering substantial losses and that they in turn may cut prices in order to keep their customers or to get them back. And the fact that they will do this may be decisive in the calculations of the first seller, who will reason that, since his move will be met by countermoves which will in the end leave everyone worse off, including himself, he might as well stay put in the first place. Or he may decide to go ahead anyway and run the risk.

But these uncertainties do not exist for what I have called an isolated monopolist, and let us look first at this simplest case of all, where there is no mutual dependence whatever. The isolated monopolist, by definition, is not subject to repercussions. The reason he is not, is that when he (say) cuts his price, he makes his gains (perhaps substantial) in small degree from a large number of others, so that no *one* of them is appreciably affected by what he does. In such a case he determines his policies in isolation in the sense that he need not think of repercussions, but can take the prices, products and selling outlays of others as data.

This is the traditional monopoly problem, with a " given " demand curve (although we must now add to it an analysis of the product itself as a variable, and of advertising), a demand curve drawn on the assumption that the prices of other products are unaffected by what the monopolist does. It has in recent years frequently been described as a " pure " monopoly, and thus the whole nature of monopolistic competition has been falsified by a misunderstanding of one of its limits. Since the concept of " purity " in relation *both* to monopoly *and* to competition was introduced into economics as a part of the definition of monopolistic competition, I think I have a special right of protest. Just as pure competition must mean the absence of monopoly, so pure monopoly at the other extreme must mean the absence of competition. And since competition is always a matter of substitutes, and since substitutes are always a matter of degree, so that in the last analysis everything is a substitute for everything else as we weigh alternative avenues of expenditure for our incomes, there would be pure monopoly only when a single authority controlled every economic good,[1] as conceivably would be the case under state socialism. No such monopoly exists, of course, in a non-socialist society, but that is precisely the point that needs to be made : *every* monopolist in real life is subject to competition in greater or less degree, and it is very important for clear thinking to realise that monopoly is after all *only* a matter of degree. An isolated monopolist, as described above, is not a pure monopolist. He is clearly subject to competition ; it has an important effect upon both the position and the shape of his demand curve. But his competitors are dispersed, and since he cannot appreciably affect them, he does the sensible thing and ignores them. Any producer who has either no close substitutes or a very great many, for his product, may be an isolated monopolist, for in either case his moves will have no very substantial effect upon any other single firm.

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[1] Cf. *Monopolistic Competition*, pp. 63–4.

The isolated monopolist is, like anyone else, beset by the competition of others locating as near him as they can in economic space. It is quite possible that, even though he has no *close* substitutes for his product to worry about, the demand for it will still be adequate to yield him only minimum profits. Such may be the case for instance with a retail enterprise in a small or isolated village, with a street railway company in a large city, etc. Evidently the demand for his product may also be greater than this, yielding him profits in excess of the minimum—the familiar monopoly profits. A technically isolated monopolist may also find his profits reduced to a minimum by the fact that there are *many* producers of close substitutes ; or again, in spite of the many close substitutes, the demand for his own product may remain strong enough to yield him profits in excess of the minimum. In these particular matters, two misinterpretations of monopolistic competition theory have been especially prevalent from the first : (1) " tangency " has been associated only with the " group problem ", and indeed has often been considered as coextensive with it, and (2) the isolated monopolist (wrongly defined as a " pure " monopolist) has been held strictly apart from the theory. The argument above is designed to show the falsity of both of these views.

It is of interest to note that the single seller under pure competition is isolated in the same sense that we have been discussing. Since he is one of a very large number, the effect of any adjustment he makes in his affairs upon any other individual seller is negligible, and he simply decides upon the best output for himself at the " going " price, meaning by this the price he expects to prevail at the time he will sell his product, Returning to monopolistic competition, in a system of isolated monopolists, wherever demand is such as to yield only minimum profits, production must take place (under conditions of tangency) on a scale less than that corresponding to the most efficient conditions of production for any particular product, i.e., to the left of the minimum point on its U-shaped cost curve. Even where sellers are not as hard-pressed as this, the chances are great (although not to the point of certainty) that they will also be producing at less than the most efficient output. Since the minimum point on the cost curve is widely associated with " ideal " conditions, monopolistic competition has been widely associated with a departure from this ideal, and a large literature advocating corrective measures has come into being. Such a programme, to my mind, indicates nothing so much as a complete misunderstanding of the problem. When the output of an *industry* is defined as homogeneous, as in Mrs. Robinson's *Imperfect Competition*, there is every reason to associate its production under " ideal " conditions with an adjustment of output for each firm in the industry which will make its costs a minimum. But when the product is recognised to be heterogeneous, as under *Monopolistic Competition*, it is the demand curve for the individual products, not those of " industries ", which must enter into the definition of the ideal. The general system of consumers' preferences now embodies sloping demand curves for the individual firms as an expression of the general desire for diversity which must now be recognised as co-ordinate with efficiency in production in defining the welfare ideal.

Let us pass to the non-isolated seller, or to the problem now commonly known as oligopoly. The literature of this subject has expanded rapidly in recent years. It is specifically excluded from Mrs. Robinson's book, apparently on the ground that it is thought to interfere with the development of the marginal revenue technique, which is her central interest; and I think it is because our two theories are so generally considered as one that I have often been included in an accusation of neglect. Thus Mr. K. W. Rothschild, having performed a spiritual marriage and described Mrs. Robinson as the " mother " and myself as the " father " of a single theory, asserts that *the* theory " badly neglects " oligopoly, with only a footnote observation to the effect that the neglect is " particularly noticeable " in Mrs.

Robinson.[1] I can only say that not only was the subject given its present name in the *Theory of Monopolistic Competition*, but it was clearly presented (Chapter I) as coordinate with product differentiation—one of the *two* ways in which monopolistic and competitive elements may be blended, and was given what was meant to be at that time an exhaustive analysis.[2] Here I am obliged to confine myself to two brief observations, and to the development of what seems to me to be the most important consequence of oligopolistic forces for the economic structure.

The first observation is that the subject needs to be rewritten in terms of that extremely useful concept which originated, I believe, with Mr. Kaldor, of cross-elasticity of demand, rather than in terms of the number of sellers in a market. In the typical chain relationship between sellers, which emerges so clearly from our earlier spatial example, there is in fact neither market, commodity nor industry for which the number of sellers may be counted. A particular seller may be taken as a focal point and related to others near by; but when we move on to the next seller the grouping changes slightly. In fact if we consider the extreme of an economy in which the phenomenon of "isolation" does not exist, there can be as many groups of this sort as there are sellers. I do not know of any comprehensive development of the theory in these terms, but it seems to me to be indicated as a major consequence of recognising that the product is heterogeneous.

The second observation has to do with the attitude that economists should take towards the discovery and recognition of oligopoly. It seems evident to me that oligopolistic elements are very general in the economic system and that economic study must be increasingly concerned with their influence upon prices and other economic categories. In so far as this factor interjects indeterminateness into the system it is certainly the job of the economist as a scientist to say so.

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[1] "Price Theory and Oligopoly," *Economic Journal*, September, 1947, pp. 301–2.

[2] The procedure was to analyse first oligopoly and then product differentiation, each in isolation, and finally to combine them. Thus the comprehensive treatment of oligopoly without product differentiation in Chapter III (and Appendix A) is *preliminary* to its integration later on into the whole system. This will be clear by referring especially to pages 83, 100ff., 150, and 170ff. I am unable to find any basis whatever in my treatment of oligopoly for Mr. Rothschild's strange statement that the idea of indeterminateness is "abhorrent" to me, and further that I "try hard to formulate my additional assumptions for the oligopolistic case in such a way as to obtain a determinate equilibrium price . . ." I am particularly distressed by such statements because I have for years held quite the opposite view, as will appear in a moment.

It may happen that situations are indeterminate because only a selection of the variables actually involved—the "economic" ones—has been included in formulating the problem. Thus the discovery that certain "economic" problems, narrowly conceived, are indeterminate may be a necessary preliminary to putting them into the wider context which will explain why in the real world they do in fact settle down into some form of stable relationship. After all, economics deals with only one aspect of social reality, and by trying to give complete explanations within itself may end up by giving false ones. However that may be, the only defensible scientific attitude seems to be to "let the chips fall where they may", to give full importance to the indeterminate as well as to the determinate, and carefully to avoid the temptation of formulating problems with the *objective* of assuring a determinate answer.[1]

The most important consequence of oligopolistic forces for the economic structure is that of multiplying the number of firms and products in the system. In so far as these forces raise prices and hence profits above what they would be if each seller considered himself isolated, the extra profits will draw other firms into the general area in question (assuming such movement to be possible). Each firm will get less business and profits generally will be reduced, not by lower prices, but by the rising unit costs which accompany the smaller scale of operations. Where such a situation obtains, there appears to be genuine waste. And there is good reason to think that it is not uncommon wherever there is mutual dependence, or wherever for other reasons price competition fails to work or works only sluggishly.

One case of this sort deserves special comment, and it is that of the "full cost" principle, which has always been an integral part of the theory of monopolistic competition, in spite of being presented by Hall and Hitch in their famous article as a correction.[2] I am convinced that this type of theory, with its many variations, is of great importance; and it strikingly modifies many of the conclusions of the marginal approach. In this case we may get results similar to those just discussed, but via a different route ; the influx of sellers may come first, perhaps gradually and imperceptibly, simply through an increase in the number of people trying to extract a living from some particular kind of activity. As a result each one gets less business and his unit costs rise, therefore his prices also. Here the large number of sellers precedes the rise in price instead of following it. But the end result is the same—a multiplication of firms and a striking departure from the economic system which would result from each seller maximising his profits along a Marshallian demand curve (which neglects repercussions), to say nothing of a system defined by pure competition.

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[1] Professor Hicks holds the contrary view. Believing that "a general abandonment of the assumption of perfect competition . . . must have very destructive consequences for economic theory", he wishes to preserve the theory. (*Value and Capital*, pp. 83–5). At another period of history one might have argued similarly for continuing to believe that the world was flat.

[2] Cf. *Monopolistic Competition*, pp. 105–6, and Hall and Hitch, "Price Theory and Business Behaviour", *Oxford Economic Papers*, No. 2 (1939), p. 30.

It remains to indicate how the theory of monopolistic competition permits us to pass over to the study of dynamics, and in particular of the problems of development and growth. On this matter the late Professor Schumpeter was the great authority. And in the theory of the subject which he developed it is significant that the entrepreneur who breaks away from the established order of things by introducing an " innovation ", enjoys for a period of time a monopoly of it. From this temporary monopoly position he derives profits, and if he is clever enough, by the time others have caught up with him he will be out in front again with another innovation.

There are many major differences between Schumpeter's system and my own,[1] but with respect to the rôle of monopoly in the process of economic development there is agreement. How can one doubt that if a new product or variation of a product, or a new and more efficient technique of production, could be instantly imitated by others, the incentive to make it would for most people be lost ? Since one could never gain even a temporary advantage there would be no use in trying, especially since he could be certain never to fall behind by merely copying at once anyone else who did try and who succeeded.

But it must now be recognised that dynamic monopoly of this kind builds a pretty hot fire under everyone—not only to get out in front with an improved product, but to keep from falling behind with an out-of-date one. It is a situation where, as in the country of the Red Queen, " it takes all the running you can do to keep in the same place ".

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[1] Cf. my article " The Impact of Recent Monopoly Theory on the Schumpeterian System ", *Review of Economics and Statistics*, May, 1951, p. 133.

Technical progress, of course, requires a favourable scientific environment, and a spirit of enterprise ready to create and exploit the potential opportunities for profit in new products and new ways of doing things. But in terms of the categories of competition and monopoly the essential requirement is a field as open as possible to the formation of *new* monopolies which will help to curb and destroy the old ones. Schumpeter has called this whole process " creative destruction ", and it is an apt paradox.

Inevitably the prizes in this struggle fall unevenly, even to those who succeed. Some find just the product that the public wants, and reap enormous gains before anyone catches up with them—if indeed anyone ever does. Others succeed more moderately, and large numbers contribute substantially to the output of the economic system although never " enjoying " anything but losses. Even in the midst of the prosperous twenties, roughly half of the business corporations in the United States were operated either at a loss or at profits so negligible that they would never have attracted enterprise into the field in question, could they have been foreseen.

The conclusion from this unevenness is that there is no reason to expect a close connection between actual profits and entrepreneurial contribution in any particular enterprise. And judgment as to the " reasonableness " of profits ought never to be made without looking *beyond the limits of the particular firm which earns them.*

Schumpeter has remarked that " the bulk of what we call economic progress is incompatible with . . . perfect competition ".[1] But it must not be concluded that it is the product of monopoly without calling to mind again that a monopolist is subject to competition in varying degrees, and that it is not good for him, or for " progress ", for him to have too little of it. A monopolist in a fairly well-protected position—as were the railroads before the development of motor and air transportation—is, as we know from much empirical evidence, only too likely to become fat and lazy. What is needed is both monopoly and competition, and particularly the leaven of competition from newcomers.

We turn now to a brief statement of the difference between monopolistic and imperfect competition.[2] It was, I think, highly unfortunate for *both* the *Theory of Monopolistic Competition* and the *Economics of Imperfect Competition* that, although actually written with roughly a six-year interval between them, they were published within the same calendar year of 1933; and, I might add, that they presented the superficial similarity that a small and rather unimportant part of each of them offered to a world of economists jaded by equilibria in terms of intersecting lines that perfectly fascinating geometrical construction of tangency.[1] It was unfortunate in that two quite distinct theories, with quite distinct origins[2] and objectives, have become so confused that they are now widely identified, with a corresponding failure on the part of most to understand either one.

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[1] *Capitalism, Socialism and Democracy*, p. 105.

[2] I am confining myself here to the essential difference which appears to me to be the prime source of all others.

A year after our two books had appeared, Mrs. Robinson wrote an article[3] in which it seemed to me that she found fault with almost everything that I considered most important in my own theory, from the concept of " purity " to that of a differentiated product. *It ought to have been clear at once that we were thinking in quite different terms.* Yet the evidence that *Imperfect Competition* is *not* a blend of monopoly and competition revealed itself only slowly, and when I pointed out the differences between the two theories as I saw them in 1937,[4] Mr. Kaldor found nothing more than " braces v. suspenders " and accused me of having fallen a victim to my own theory and of trying to

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[1] In fact, the rôle of the " tangency solution " in the structure of the two theories is completely different. Also the " solution " itself is different, since both the demand curves and the cost curves are differently defined.

[2] Mr. P. W. S. Andrews has recently restated the familiar and false interpretation against which I have already protested. " When I refer to the modern theories of business behaviour," he says, "I am thinking especially of the doctrines which had their origin in the discussions in the *Economic Journal*, 1926–33, to which many economists contributed. These resulted (*sic.*) in Professor Chamberlin's *Monopolistic Competition* and Mrs. Joan Robinson's *Economics of Imperfect Competition*." (" Some Aspects of Competition in Retail Trade," *Oxford Economic Papers* (New Series), June, 1950, p. 138 note).

Actually my own work was first written in the years 1925–6, and filed as a doctor's thesis in Harvard University Library on April 1, 1927. It was subsequently revised and rewritten (see Preface), but its connection with the specific controversies of the late 20's and early 30's which form the background of Mrs. Robinson's book is literally *nil*. Not even in the revision was there any attempt made to integrate its content with post-1926 materials. The reader may observe for himself that the few footnote references designed in small part to " bring it up to date " (cf., for instance, pp. 5, 14, 54, 73, 86, 126, and also the last four pages of Appendix A) do not grow out of the text, but are merely tacked on to it.

Holding as I do that the two theories are quite different, my interest is not in " priorities ", but in trying again to put an end to the sloppy way in which the two are usually identified. Their supposed common origin has played a major part in this identification.

[3] " What is Perfect Competition ? " *Quarterly Journal of Economics*, November, 1934.

[4] " Monopolistic or Imperfect Competition ? " *Quarterly Journal of Economics*, August, 1937; reprinted in the fifth and later editions of *Monopolistic Competition* as Chapter IX. The discussion with Mr. Kaldor is in the same *Journal* for May, 1938.

" differentiate my product too far ". However, his reply was eloquent in its support of my interpretation of Mrs. Robinson's theory, for he argued that the two theories were alike because there was no monopoly in either one! I can only ask anyone who thinks that monopoly is missing from *Monopolistic Competition* to go back and read again.[1]

This is indeed the fundamental difference between monopolistic and imperfect competition: that the former is a fusion of the hitherto separate theories of monopoly and competition, whereas the latter leaves the conventional dichotomy as sharp as ever.

The fact that *Imperfect Competition* contains no monopoly in the traditional sense of control over supply is fully documented in the latter half of my own chapter IX. Mrs. Robinson is " tempted " by the possibility of arranging " actual cases in a series of which pure monopoly would be the limit at one end and pure competition at the other ", but finds that it cannot be done. Monopoly in the sense of control over supply therefore explicitly retains its association with an *industry*—and with a firm only if the firm coincides with the industry. This is as it always was. Consistent with this view, the various producers within an imperfectly competitive industry have no monopoly because the output of the industry is defined as homogeneous.[2] Mr. Kahn stated two years later that " It is to be understood that the phrase *imperfection of competition* does not carry with it any of those implications with which by tradition the word *monopoly* is associated ".[3] And Mr. Kaldor still later said, in effect, that if I had ever seriously faced the question of defining pure monopoly, the difficulties of blending monopoly and competition would at once have been apparent, and I too should have seen that it could not be done.[4] But the question *is* faced and answered in Chapter IV. Mr. Kaldor had missed the definition given, and therefore, like so many others, had misread the meaning of the theory itself. However one may judge the result, a way *was* found for doing it, and it is this blend of monopoly and competition (together with the more obvious blend on the scale of numbers) which is the essence of the theory.

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[1] Suggestion: p. 8 for the matter of numbers; Chapter IV for product differentiation.

[2] *Imperfect Competition*, p. 17.

[3] " Some Notes on Ideal Output," *Economic Journal*, March, 1935, p. 20.

[4] *Quarterly Journal of Economics*, May, 1938, p. 526.

A theory which aims to blend monopoly and competition could hardly neglect the scale of numbers and the intermediate area of oligopoly. And having departed from the traditional assumption of a homogeneous commodity to insist upon the fact that each producer's product is different from those of others, it could hardly fail to include the possibilities of varying products (as well as prices) and of advertising and selling costs as types of competition growing out of heterogeneity. Such a theory presents an explanation of the economic system so different from that of the traditional dichotomy that one would expect it to have ramifications into the farthest corners of our thinking with respect both to general analysis and to questions of policy. And one would expect these ramifications to be different from those which have evolved from the theory of imperfect competition, where the dichotomy is consciously or unconsciously present.

In summary, let me call attention to the chief points of difference between this formulation of monopolistic competition theory and the one of 1933.

In the original version the point was first made that monopoly and competition were blended in *two* ways: with respect to numbers and with respect to the differentiation of the product; and the proposal made to study each separately and then combine them. Oligopoly without product differentiation was then analysed; after which came product differentiation without oligopoly, i.e., for both a single seller and for a very large number (the familiar "large group"), under the provisional assumption of uniformity of demand and cost conditions for all the firms in the group. In each case there was an analysis of the product as a variable. Oligopoly was then reintroduced, and thus combined with product differentiation. The full cost principle and other departures from profit maximisation were added, and finally the "uniformity assumption" was dropped and the actual diversity of conditions incorporated into the theory. Selling costs, which had been excluded up to this point, were then added, and the whole analysis revised at each stage to include them.

The present formulation is much simpler. It begins with the individual seller and uses the spatial example to illustrate how the entire economic system may be viewed as an elaborate network of interrelated firms, each one being able to adjust from the beginning either its price, product or selling outlay. The " uniformity assumption " is used only momentarily, and diversity appears at once in the form of concentrations of buyers. The individual firm is either isolated or related oligopolistically to others. The group has disappeared from the formulation here given,[1] and with it the concept of " large numbers ", since the individual seller in this latter instance is again correctly described as " isolated ", even in the special case of pure competition. The problem of " entry " disappears along with the group, and becomes absorbed into the larger problem of the distribution of resources throughout the entire economic system.

In the present formulation the importance of oligopolistic relations in the whole system emerges with greater force, as does that of the full cost principle and other departures from profit maximisation, and the relation of the theory to problems of development and growth. I believe that this is only one of numerous ways in which the subject may be presented, but I hope it is one in which the theory emerges more clearly as a *general* one, designed to replace that of pure competition as a basis for analysing the whole economy.

Harvard University.

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[1] The " group " was always meant to be a completely flexible concept—if it had meant an industry, the word " industry " would have been used—and there is clearly no reason why *any area whatever* within the whole economy may not be marked off, even quite arbitrarily, for separate study. But there is urgent need for examination of the variety of criteria by which areas intermediate between the firm and the whole economy may also be *meaningfully* defined. This more general statement of the theory without groups should be regarded as preliminary to a more critical study of the group problem.

The Port of Liverpool and the Crisis of 1793[1]

By Francis E. Hyde, Bradbury B. Parkinson and Sheila Marriner

The commercial and financial crisis of 1793 is a most interesting, though small, part of the cyclical pattern which steadily recurs, first in the British economy and then with widening regularity throughout the world, from the end of the war of American Independence to the present century.[2] The year 1793 was undoubtedly a turning point in this cyclical pattern ; it was a trough year, and in the evidence supplied by A. F. Burns and W. C. Mitchell it is marked as such between the peak years of 1792 and 1796. It is in the scale of the decline, in the isolation of particular factors and in the nature of the recovery that interest attaches to this crisis. Mercantile communities in various parts of the country suffered disproportionately ; some recovered more quickly than others. In no great trading centre were the losses more severe than in Liverpool ; in no place were such energetic measures adopted to achieve a rapid recovery. An analysis of crisis conditions in Liverpool, the major exporting port for the Midlands and the North Country, can, it is hoped, provide much useful information for the economist and for the economic historian, and throw into relief some of the local factors tending to aggravate fluctuations in the history of the trade cycle.

Contemporary opinions on the causes of the crisis adduced a varying range of phenomena. The Report of the House of Commons Committee on the State of Commercial Credit[1] stressed among other things the evil effects of an extension of credit by those without sufficient capital to back it. Their ruin had involved other houses which possessed ample funds for the ultimate settlement of their obligations, but which were at that crucial time unable to make such funds available. The sudden discredit of commercial paper had created a deficiency of circulating medium, the apprehension of unusual calls had induced banking houses to keep large sums out of circulation and to restrict advances. Consequently goods could not be sold nor orders received and unemployment began to increase. Sir Francis Baring ascribed as a major cause of the crisis the practice by country banks of paying interest on deposits which put them in a disadvantageous position as compared with London bankers who paid no interest.[2] This practice compelled the country banker to invest heavily and so to tie up funds which could not readily be realised in times of emergency. In addition most country bankers' notes allowed interest to begin some months after date, and were then payable on demand, "by which means they had not an hour to prepare for their discharge".[3] Baring considered that the sudden and unexpected declaration of war with France in February, 1793, also materially contributed to produce a derangement of credit. This view, however, was discounted by Chalmers writing in 1794[4] and by Tooke, who, although he wrote in 1838, based his conclusions on his "own recollection" as well as on his own careful researches.[5] He was of the opinion that the fundamental causes lay in "a great and undue extension of the system of credit and paper circulation not only in the internal trade and banking of this country, but in the commercial transactions of the principal cities of the continent of Europe and in the United States of America".[6]

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[1] The authors are indebted to Mr. John Ainsworth, M.B.E., City Treasurer of Liverpool, for permission to use material in the Municipal Archives, to Mr. C. J. Verity, Chief Manager, Martins Bank, to Mr. J. R. Whittle of Heywoods' Branch, Martins Bank, for permission to use some Heywood MSS, and to Mr. T. H. Naylor of Sandbach Tinne & Co., and Mr. G. Papworth for advice and information on the interpretation of some of the documents.

[2] A. F. Burns and W. C. Mitchell, in *Measuring Business Cycles*, give a clear annual picture of this pattern from 1792 ; after 1854–5, they use monthly and quarterly fluctuations.

A. D. Gayer in his *Growth and Fluctuation of the British Economy 1790–1850* uses monthly figures from 1790. Lord Beveridge in *Full Employment in a Free Society* demonstrates in Appendix A the existence of a trade cycle in Great Britain from the end of the eighteenth century though W. W. Rostow in *British Economy of the Nineteenth Century* and others have pointed to deficiencies in the Beveridge Index which tends to overlook the influence of minor cycles before 1850 and which therefore had the effect of distorting the timing of the major cycles.

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[1] *Journal of the House of Commons*, XLVIII, 703–4.

[2] Sir Francis Baring : *Observations on the Establishment of the Bank of England* (1797), p. 16. "The country banker is in a very different situation, for he allows interest on deposits and therefore he cannot afford to suffer even a small sum to remain dormant and unproductive."

[3] *Ibid.*, p. 18.

[4] George Chalmers : *An Estimate of the Comparative Strength of Britain* (1794).

[5] T. Tooke : *A History of Prices* (ed. Gregory, 1928), I., p. 177. "Notwithstanding this deservedly high authority for the supposition that the breaking out of the war had contributed in a considerable degree to the memorable derangement of commercial credit which occurred about that time ; I am disposed both from my own recollection and from all that I have been able to collect by research, to doubt whether the war had much influence in the origin of the discredit".

[6] *Ibid.*

Later writers stressed the points made by Tooke and added other factors to the general sum total of the causes of the crisis. Leone Levi elaborated upon the laxity of credit operations by country bankers and referred to the aggravating effects of bad harvests in 1792 and 1793. He also included the factor of rising prices of colonial produce in 1792 and the sharp decline of such prices in 1793.[1] Feavearyear, following a line suggested by Tooke and others before him, concluded that from April, 1792, the war on the Continent and the growing demand in England for action against France, created some nervousness among the holders of country notes and this in turn caused a drain on the reserves of the Bank of England.[2] Rostow has pointed out the year 1792 as being a peak year and that the cyclical expansion was marked by substantial long-term investment at home and abroad with conditions of virtual full employment, followed by reverse conditions in the next year.[3]

Sir John Clapham did much to bring the long- and the short-term data of this crisis into perspective, though in considering his conclusions it must be borne in mind that he was concerned with the effects of crisis on the operations of the Bank of England. The general uncertainty in 1792 had led to an exceptionally heavy foreign selling of British funds and the remittance of the proceeds abroad. The bad harvest of the same year had rendered necessary the importation of foreign corn. Clapham concluded that "hanging as Great Britain was, on the edge of self-sufficiency, a season with appreciable importation of corn was certain to incline the exchanges further against her, other things being equal. It introduced an abnormal element into her balance of trade."[4] As far as the Bank was concerned the outbreak of the war produced no crisis conditions, though in the country as a whole the outbreak was responsible for much damage.[5] As to fluctuations in commodity prices Clapham quoted Silberling's index to show that there had in fact been no very great fall.[6] His analysis in the end more than confirmed Tooke's assessment of the situation written more than one hundred years earlier. "The collapse," he stated, " was not in prices, or in the first instance in production, but in confidence and in the circulation. As country banks stopped payment the circulating medium ran short. Other banks in country and town clung to their cash and would not discount. Industry that had been so active but had relied on the resources procured by discounting bills to carry on, even to pay current wages, was brought up with a jerk ".[1] These enumerations seem to follow a familiar pattern; they are generalisations which are of special importance in the over-all picture of the crisis. But we need a more particular assessment if we are to judge something of the cause and effect more precisely. Liverpool has therefore been chosen as a field of investigation for such a purpose.

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[1] Leone Levi: *A History of British Commerce* (1880), pp. 69–71.

[2] A. E. Feavearyear: *The Pound Sterling* (1931), p. 165.

[3] Rostow, *op. cit.*, p. 33.

[4] Sir John Clapham: *The Bank of England* (1944), pp. 258–9.

[5] *Ibid.*, p. 259.

[6] *Ibid.*, pp. 260, 262.

As a port, it was second only in importance to London and was the main inlet for raw materials and outlet for the manufactured products of the rapidly growing industrial areas of Lancashire, West Yorkshire and the Midlands. It handled about one-sixth of all the shipping cleared from British ports and its merchant body of 500 traded with all parts of the world.[2]

The documentary evidence from individual merchant houses has been supplemented by the ledger accounts of the banking firm of Arthur and Benjamin Heywood (the largest of the four Liverpool banking houses of that time), by letters with the London house of Joseph Denison & Co., and by the municipal records relating to the operation of the Corporation note issue of 1793. These sources are not as complete as one could wish, but they are sufficiently comprehensive to lend themselves to analysis and thus to give a fairly accurate picture of the situation.

It would be as foolish to underestimate the extent of the decline in Liverpool's overseas trade in 1793 as it would be equally foolish to overestimate it. Compared with 1792, which was a peak year, trade with the West Indies was maintained at only a slightly reduced volume, though values may have shown a disproportionate fall. Certain branches of trade with the United States were adversely affected though here again the fall in trade suffered by British shippers was partially offset by an increased volume handled by foreign shippers.[1] The one trade which showed a marked decline below the general trend was that with Russia, and this was caused primarily by the difficulty of access to and from the Russian ports consequent upon the outbreak of war with revolutionary France. In all other respects, however, it is safe to assume that Liverpool's overseas trade was following a general cyclical trend and was but little affected by the outbreak of war.

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[1] *Ibid.*, p. 262. The use of bills for a great variety of transactions was more widespread in Liverpool and South Lancashire than elsewhere. T. S. Ashton: " The Bill of Exchange and Private Banks in Lancashire, 1790–1830," in *Econ. Hist. Rev.*, Vol. XV, 1 and 2 (1945), pp. 25–35.

[2] T. Baines: *A History of the Commerce and Town of Liverpool* (1852). An examination of Gore's *Liverpool Directory* from 1766 onwards confirms the figure of 500 merchants, though the term ' merchant ' often covered a wide variety of activities. Of the 500 it is estimated that 300 were men of substance with extensive overseas connections.

Consider next the effect of fluctuations in the prices of colonial products. Such commodities as coffee, sugar, cotton, indigo, tobacco in which Liverpool merchants traded extensively, had been subject to some degree of speculation in 1792 in consequence of apprehended scarcity.[2] Throughout this year prices remained high and from all available evidence rose sharply in January, 1793.[3] On the outbreak of war there was a short period of uncertainty with falling prices, and a quick recovery after which prices remained fairly stable for the rest of the year. Silberling's unweighted index for imported commodities records the rise in prices in the first and second quarters of 1793 and the stability during the latter half of the year,[4] but, as one might expect, this index is not sensitive to local fluctuations such as that presented by Liverpool's nervousness about the effects of war on her colonial trade. In general, however, Silberling's index does not unduly distort the Liverpool picture, and it is possible to apply Clapham's general conclusion to Liverpool that " the collapse was not in prices ".[5]

The more one studies the causes of the crisis of 1793 in Liverpool, the more one is led to suspect that it was a crisis brought on in the first instance by repercussions of bankruptcies in other parts of the country, by widespread ruin as a result of the failure of one of the city's principal banking houses,[1] and that panic, lack of confidence and an acute shortage of circulating medium were responsible for its prolongation. According to Clapham the firm of Charles Caldwell & Co., which had been forced to close, " was said to have stopped payment for upwards of two millions of money ".[2] It is not possible to assess the exact extent of the loss to Liverpool, but Heywoods were forced to borrow £40,000 on March 25th to tide them over, and later to accept £30,000 worth of Exchequer Bills.

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[1] Statistical data for the trade of Liverpool in the eighteenth century are notably deficient and inaccurate. The great mass of material relating to Liverpool's trade in the eighteenth century perished when the Customs House was destroyed by fire in the early part of the nineteenth century. The general picture can, however, be obtained from figures supplied by T. Troughton: *A History of Liverpool* (1810). With certain exceptions Troughton's figures were based on returns supplied by the Inspector-General of Ports, Customs House, London. An earlier source is to be found in J. Aiken: *A Description of the Country from Thirty to Forty Miles Around Manchester* (1795). The original estimates, however, were made by George Perry and were included by W. Enfield in his *Essay Towards the History of Liverpool* (1773).

[2] Richard Brooke: *Liverpool as it was during the Last Quarter of the Eighteenth Century* (1853). Liverpool merchants were much alarmed by the disorders in San Domingo, and by the consequent interruption of trade with the French islands.

[3] Gore's *General Advertiser*: March to November, 1792; January to April, 1793.

[4] N. J. Silberling: " British Prices and Business Cycles, 1779–1850," in *Review of Econ. Statistics*, 1923, Vol. V, Supp. 2.

[5] Clapham: *op. cit.*, p. 262.

The merchants themselves recognised the real nature of the problem. One hundred and twelve of their number[3] petitioned the Mayor to summon a Council for the purpose of laying before it an agreed proposal asking the Corporation under pledge of its seal to obtain a loan from the Bank of England. This Council was held on March 20th, 1793. " The late extensive failures, particularly of some great commercial and banking houses in London ", so ran the minutes of this meeting, " were almost immediately followed with the failure of a very old and principal banking house in Liverpool; that the latter failure had now caused such an alarm in this Town and its neighbourhood that not only the other Banking Houses were greatly distressed but there was an apprehension of a general calamity to the merchants, traders and inhabitants of this place . . . from the shock to public confidence and from the want of immediate pecuniary resources ".[4] Subsequently a joint committee of merchants and Council members reported, after hearing evidence from Richard Heywood and James Gregson on behalf of the bankers that a sum of £100,000 was needed to meet commitments and to restore confidence.[5] As will be seen later, the Liverpool bankers had grossly underestimated the extent of the deficiency. It needed treble the sum suggested, and much energetic corporate action in the establishment of what proved to be a most interesting experiment in the history of paper money, before confidence and the circulation could be again restored, and the commercial life of the city renewed.

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[1] The banking house of Charles Caldwell and Co. was forced to close. There were four other banks in Liverpool in 1793: Arthur Heywood, Son & Co.; William Gregson, Sons & Co.; William Clarke & Son; and Staniforth, Ingram, Bold & Daltera.

[2] Clapham: *op. cit.*, p. 260.

[3] Among the names were Thomas Tarleton, William Rathbone, James Lythgoe, John Gore, John Gladstone and William Earle.

[4] Liv. Mun. Archives. *Council Minutes*, Vol. 13, March 20th, 1793.

[5] *Ibid.*, March 21st, 1793.

The initial negotiations with Pitt and with the Directors of the Bank of England to raise a loan under pledge of the seal of the Corporation failed. On April 15th, therefore, the Mayor of Liverpool, Clayton Tarleton, informed the Council that on the failure of the negotiations the delegates had petitioned Parliament for an Act to grant them power to issue negotiable notes up to a given amount.[1] This action was ratified by the Council and shortly afterwards a Local Act was passed for this purpose.

This Act[2] contained many interesting provisions. The Council were empowered to issue "for value received or other due security" notes of £100 and £50 with interest not exceeding the lawful rate. These notes could be issued for two years and after the expiration of that time interest-bearing notes of the same nature might be issued. There was in addition the power to issue non-interest-bearing notes of £5 and £10 denominations, but these notes were not redeemable until the expiration of three years though the Corporation could exchange interest-bearing for non-interest-bearing notes and the total issue was limited to a maximum of £300,000.

The machinery established for the purpose of giving effect to the Act was detailed and complicated. Briefly, a Loan Office was set up and a Committee formed for the regulation of day-to-day business.[3] Originally, loans were made by the Common Council on security to the extent of two-thirds of the value of the goods, wares and merchandise offered, and also on Bills of Exchange if not longer than nine months, date; to the extent of one-half on ships in docks duly insured. Ships on the stocks were included in the Schedule of Securities on June 7th, but real estate was restricted to one-half of the value on June 26th.[1] No one was to be granted a loan in excess of £3,000, though this limitation was withdrawn on July 18th.[2] Finally, in order to give a wider circulation to the notes, London correspondents were appointed. The firm of Joseph Denison & Co. was chosen for this purpose, but the evidence preserved in the correspondence between the Loan Office and Denison clearly shows how difficult it was to secure acceptance of the notes by London Houses even at substantial rates of discount.[3] In fact, not more than £7,000 worth of notes were taken up in this way.

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[1] *Ibid.*, April 15th, 1793.

[2] 33. George III, C. 31. Entitled "An Act to enable the Common Council of the Town of Liverpool in the County of Lancaster on behalf of and on account of the Corporation of the said Town to issue negotiable notes for a limited time and to a limited amount." *V.* also E. C. K. Gonner: "Municipal Bank Notes in Liverpool, 1793–95," in *Economic Journal*, Vol. 6 (1896), pp. 484–487.

[3] The Loan Office was at first in the Exchange, but after the fire there in February, 1795, it was moved to Exchange Alley. The original committee was composed of the following members: Thomas Earle, Thomas Naylor, William Cubbin, Henry Blundell, George Case, Henry Clay, Joseph Brooke, Richard Statham, Edward Chaffers, Edward Falkner, Moses Benson and Thomas Alison. The secretary was John Colquitt, the Actuary, John Wilson, and the Chief Clerk, Joseph Reddish.

The available records concerning Liverpool provide a lively commentary on the severity of the crisis. It is evident that a considerable volume of money was needed for a comparatively prolonged period. The stout ledgers and diligently compiled accounts of the Corporation note issue show total transactions of £231,175 and an injection of nearly £70,000 of loans into local credit for several months. This figure did not represent the limit of total demand for assistance, for £50,000 of loans in addition were refused because inadequate security was offered.[4]

An analysis of 715 accounts of Heywoods' bank shows a drain of cash fluctuating between £70,000 and £80,000 above what could be considered as normal—a formidable sum, when it is considered that it refers only to part of one bank's transactions, and justifying the "serious alarms of further inconvenience", and "apprehension of a general calamity", which the Council reported.[5] The consternation in the early summer of 1793 must indeed have been memorable. Such scattered evidence as is available points in the same direction—to an imperative demand for a considerable volume of liquidity, in order to meet what appeared to the Negotiable Note Committee to be an "unprecedented stagnation of credit".[6]

There is considerable evidence for finding the peak of the crisis about the end of May or beginning of June, 1793.

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[1] Liv. Mun. Archives. *Minutes*, June 7th and June 26th, 1793.

[2] *Ibid.*, July 18th, 1793.

[3] *Ibid.*, Denison Correspondence, 11th June, 1793 to October 2nd, 1794.

[4] Liv. Mun. Archives. *Register of Requests*.

[5] Liv. Mun. Archives. *Council Minutes*, Vol. 13, 15th April, 1793 and 20th March, 1793.

[6] Further evidence of the lack of liquidity is to be found in the non-payment of rates. The Vestry Committee in their accounts for 1793, speaking of "so large a portion of the assessment", being still in arrear, says that "above all the calamitous and universal depression of trade and the consequent scarcity of money are circumstances which have all combined to render these arrears so uncommonly great": *Liverpool Vestry Books*, ed. H. Peet, Vol. 1, 1681–1799, p. 328.

The first Corporation notes were not issued until the second week in June but the maximum issue of £30,370 occurred in this month. For July and August the issues were £22,960 and £12,750, respectively. By August the pressure still existed but the credit gap had been nearly filled. In November there was a recession, for the issue jumped again to £17,100, but in no other month was the issue more than £6,000 apart from December—the figure of £8,610 in that month was no doubt associated with the November relapse.

The average monthly issue of Liverpool notes for 1793 was £14,688 as compared with £2,683 for 1794 and £1,552 for 1795. The average for the whole period was £5,297 and for the first twelve months £9,914. Accordingly, over two-thirds of the notes were issued in the first seven months and over three-quarters in the first twelve months of the scheme. During the last six months the issue was scarcely £1,000. It is evident that the issue was of maximum importance during the summer months of 1793.

The dating of the crisis is also very well illustrated by the Heywood accounts. Credit balances in the 715 accounts examined normally aggregated £140,000. They were already declining by the end of March, 1793, and by the end of April they amounted to scarcely two-thirds of normal; by the end of May scarcely to one-half; nor did they improve until September, in which month alone nearly £30,000 was recovered by the bank. The position had not returned to normal by the spring of 1794. Overdrafts at this time were no doubt being kept as low as possible but they amounted to £45,000 for June and July, 1793, and never less than £35,000 in other months, though the normal position for the accounts examined was rarely more than £30,000. A net credit balance of £120,021 in these 715 accounts at at the end of 1792 had declined to £82,589 by the end of March, 1793; by the end of May it was £41,880 and by the end of June £33,239. The March level had not been regained at the end of the year.

Looking at the picture from another standpoint, the facts are as follows: for the six months March to August, inclusive, 1792, 1793 and 1794, withdrawals from these accounts were £75,208, £151,885 and £54,202, respectively. The low withdrawals in 1794 were doubtless due to the fact that on most accounts there was little to withdraw. In March and April, 1793, 223 accounts were closed, or nearly one-third of the total, though of this total over 80 per cent. were accounts of less than £150.[1] Some of these accounts were non-commercial, but the size of the account closed is a significant illustration of the nature of the crisis in Liverpool and will be considered later in relation to the size of loans made under the note issue scheme.

Withdrawals of over £100,000 in the three months of March, April and May, 1793, justified the drastic steps taken by this house to secure solvency. The bankruptcy of Charles Caldwell & Co. at the end of February must have been a severe shock to the other Liverpool bankers and Heywoods quickly sought to increase their reserves. To meet the very heavy withdrawals by their clients in March and the even heavier demands anticipated, they raised a loan of £40,000 which was paid over to them by Joseph Denison & Co. on 21st March, 1793. The Heywood ledger does not make it clear from whom the loan was raised but Clapham states that on this 21st March some Liverpool bankers obtained a loan of £40,000 from the Bank of England.[2] Assuming this to be the same loan, it is probable that Denison, as Heywoods' London correspondent, negotiated it from the Bank.

As recorded above, withdrawals continued to be very heavy, so in May, as the crisis approached its peak, Heywoods further strengthened their reserves by obtaining a loan of £30,000 in Exchequer Bills from the Commissioners appointed to issue these Bills to assist traders and bankers throughout the country.[3] The Exchequer Bills were discounted in London, and the cash proceeds (in the form of gold) were received in Lancashire on 24th May. Thus, during the peak of the crisis in June, Heywoods were indebted at least to the amount of £70,000. The first

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[1] The activity of this bank in 1793 is perhaps reflected by its general expenses which were £1,099 in 1792, £1,769 in 1793 and £1,326 in 1794. The cost of deficient coin for the three years was £21, £55 and £5, respectively. *Heywood MSS.* Ledger Expenses and Deficient Coin Accounts.

[2] Clapham : *op. cit.*, p. 261.

[3] These Commissioners were appointed by Parliament as a result of the recommendations of the Select Committee of the House of Commons on the State of Commercial Credit. The Report of this Committee was issued on 25th April, 1793, and its recommendations were embodied in a Bill on 3rd May, 1793. According to D. Macpherson : *Annals of Commerce*, Vol. IV (1805), Liverpool received a total of £137,020 as compared with London's £989,700, Manchester's £246,500 and Glasgow's £319,730. There is nothing conclusively to show that the proposed Corporation note issue accounted for the smallness of the Liverpool figure. It may well have been due to other causes inherent in the terms under which the Exchequer Bills were issued, such as the security which had to be offered and the minimum amount lent (at first £4,000 and later £2,000). These terms made the Exchequer Bill scheme an unsatisfactory remedy for the special difficulties facing Liverpool merchants.

£40,000 served no purpose other than that of restoring confidence. After the reserves were further strengthened by the transaction in Exchequer Bills, overdrafts were allowed to increase by £10,000.

There is no evidence that Heywoods obtained further assistance during 1793. Their reserves were not immediately built up again, for even when the abnormally heavy withdrawals ceased, money did not flow back into the bank again on any appreciable scale. The repayment of these loans, therefore, indicates Heywoods' confidence that the worst of the crisis was over. It is more than probable that this revival of confidence was due to the operations of the Loan Office, for on 25th July, scarcely six weeks after the Loan Office began to function, the £40,000 was fully repaid, and repayment of the Exchequer Bills began on 23rd August, the final payment being made on 4th November, 1793. The only other loans recorded were received from the Loan Office.

Both the severity and prolongation of the crisis are shown by the amount of credit required by the town over the period. Allowing for some holding of notes for other than liquidity purposes, the volume of notes in circulation at the end of each month appears to be adequate testimony. This clearly puts the worst of the crisis about the middle of June. The volume of notes in circulation increased from £29,800 at the end of June to £50,105 at the end of July. The gap had apparently now been filled although it was some time before a natural expansion of credit made the artificial one dispensable. The immediate needs of the crisis had been met, for the circulation was only £53,025 at the end of August and it scarcely changed in September and October, the figures being £53,865 and £53,270. As already stated, a rise occurred in November, but the figure of £62,695 for that month is not far short of the December peak of £68,510. After this the circulation declined steadily but materially over the months of 1794 to almost one-half (January, 1794, £65,005 ; December, 1794, £37,140), and again steadily, if less materially, over the months of 1795. By April, 1796, the circulation was less than £10,000 and by May less than £5,000. The period of the artificial credit expansion was, then, approximately two years. In the last half of 1793 and the first half of 1794 the amount required was never less than £50,000 and it was down to £30,000 by the end of

1795. By the beginning of 1796, no further assistance was needed.

Unexampled difficulties had been promptly, efficiently and adequately met in Liverpool by a device in which there had been no previous experience, which had not been engendered without pains and which was not administered without unexpected handicaps. There was perhaps some justification for the tone of congratulation in the Council Minutes. The Common Council, in accepting the report of the Negotiable Note Committee, which stated that the Act had been attended with "beneficial consequences to the public", declared itself "fully satisfied that much essential good had been derived from that institution".[1]

It was to be expected that the duration of loans would be less than that of special currency circulation. Most of the £69,645 of loans at 5 per cent. interest had been repaid in twelve months but well over one-half in nine to ten months. These latter loans covered the worst months of the crisis as well as the setback in November and they corresponded with the period during which the notes in circulation exceeded £50,000. From the late spring of 1795 convalescence began to be apparent, leading to the complete recovery by the spring of 1796.

From the spring of 1794 loans to bankers began to replace commercial loans. At the beginning of 1794, after much discussion, a plan was agreed upon between the Loan Office and the bankers. Under the terms of this plan, Heywoods, Clarkes and Gregsons opened accounts with the Loan Office and all these accounts were persistently and materially running into debit from the beginning of 1794, reaching a peak in October, 1794, at £11,319. It was not until the beginning of 1796 when, as shown by the note circulation, affairs were considerably easier, that credit entries in the bankers' Loan Office accounts became material.[2] It seems justifiable to conclude that direct credit to merchants from the Loan Office was to some extent gradually replaced by indirect credit through the local bankers. The note issue scheme had not merely the merit of meeting the worst impact of the crisis but of guiding, assisting and encouraging the local bankers when the worst stage was over.

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[1] Liv. Mun. Archives. *Council Minutes*, Vol. 13, March 12th, 1795. Also *Report of the Negotiable Note Committee to the Mayor, Bailiffs and Common Council of Liverpool, 3rd February, 1795.*

[2] Liv. Mun. Archives. *The Note Issue Ledger—Heywood's, Gregsons' and Clarkes' Accounts.*

The nature of the crisis was amply revealed by the comparative smallness of the loans, for the total of £69,645 was spread among 45 commercial firms, and while many requests were refused, those refused were of the same order and there is no reason to believe that the amounts granted were materially less than the amounts requested. Of the 45 people who were granted loans, 13 received less than £500 and over one-half of them less than £1,000. Only two firms received loans amounting to more than £5,000. It was obviously a crisis that had hit the smaller Liverpool merchant firms severely; many of them had to make several requests to the Loan Office for accommodation. It was also a crisis that had brought distress to those merchants who handled raw cotton, cotton yarn and piece goods; no less than 62 per cent. of all the loans which were made were secured against either the raw material or the finished products of the cotton textile industry.

The analysis of the note circulation also seems to show that the demand was for ready money of a small denomination.[1] For whereas the peak period for £50 and £100 notes was in December, 1793, at £18,950 and £27,570, respectively, and for £10 notes in July, 1793, at £6,570, the peak for the £5 notes does not occur until September, 1795, at the figure of £21,220. This is in spite of the fact that £40,400 of the loans or nearly two-thirds were issued in £100 notes. In 1793 £100 notes accounted for 49 per cent. of the average circulation, but only 43 per cent. in 1794, and in 1795 and 1796 the figures are merely 17 per cent. and 5 per cent., respectively. On the other hand, an ever increasing preponderance of £5 notes is apparent in making up £18,405 (78 per cent.) out of a total circulation of £23,615 at the end of 1795.

Certain broad conclusions may now be drawn from this analysis of the Liverpool Corporation note issue and other contemporary data. First, the prompt action taken by the leading merchants in petitioning the Mayor to summon a Common Council and the subsequent establishment of the Loan Office, helped to restore confidence and allay the panic caused by the disasters of late February and early March, 1793. Secondly, the great pressure on the banks for currency to meet the difficulties caused by the sudden contraction of credit estimated to the tune of one-half to three-quarters of a million pounds was successfully countered by the loan policy of the banks themselves and by the timely operation of the Corporation note issue. Though the crisis broke in March and did not reach its peak until June, 1793, there are indications that without this note issue its severity would have been prolonged with consequent increasing calamity to the mercantile community of Liverpool and the industrial community of South-West Lancashire. Thirdly, the widespread closing of small banking accounts coupled with the preponderance of small-scale commercial loans from the Loan Office suggests that while the wealthier merchants were relatively secure and able to ride out the storm, the smaller merchants were very badly hit by the crisis. The fact that Liverpool took up such a small amount of Exchequer Bills as compared with other cities does not necessarily imply that the merchants of Liverpool were in less need of assistance. The distinctive character of Liverpool's trade and the rigidity of the credit machinery operated by its banking houses made extensive accommodation through the proceeds of Exchequer Bills difficult. The £4,000 minimum, in force until June, 1793, made Exchequer Bill loans impracticable for meeting the needs of the small merchant, and the difficulty of providing security acceptable to the banks prevented their indirect application through the banking houses. The Corporation note issue, on the other hand, was designed to meet a variety of requirements arising from the peculiarities of local conditions. Finally, as so much assistance had to be given to the smaller merchants dealing in raw cotton, cotton yarn and cotton piece goods, the vital importance of the Liverpool Corporation note issue to the textile industry in Lancashire is obvious. Had bankruptcies among the textile merchants in Liverpool been allowed to multiply, the repercussions in Manchester and in Lancashire as a whole might well have been disastrous; the strain of the crisis in the North-West might have been much more severe and would certainly have been more prolonged.[1] In sum, therefore, it might not be an overstatement to claim that the initiative shown by the merchants and the Corporation of Liverpool in 1793 not only helped to restore confidence and supply a badly needed deficiency in the circulation, but also indirectly helped to prevent a worsening and a prolongation of industrial depression. In so doing Liverpool may well have contributed towards the ironing out of a major trough in the long history of the trade cycle.

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[1] This view is not nullified by the fact that the £5 notes were not redeemable for a longer period than the £100 and £50 notes, because notes of all denominations could be freely exchanged for each other.

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[1] The crisis in the cotton textile industry was none the less severe. Apart from the bankruptcies among Liverpool merchants, about a dozen cotton spinners in Manchester were forced to close. The import of raw cotton fell from 35 million pounds in 1792 to 19 million pounds in 1793. J. Wheeler: *Manchester, its Political, Commercial and Social History* (1836).

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TABLE I.

Notes of all denominations issued by the Liverpool Loan Office.

	1793 £	1794 £	1795 £
January		5850	4125
February		1800	1250
March		2100	2050
April		3150	2700
May		3250	1200
June	30370	5300	1400
July	22960	3150	2250
August	12750	1300	1995
September	5675	1700	1100
October	5100	800	650
November	17100	3600	
December	8610	650	

TABLE II.

(*a*) Notes of all denominations in circulation at the end of each month.
(*b*) State of the bankers' balances with the Liverpool Loan Office at the end of each month. All figures other than those in italics are overdrafts.[1]

	1793		1794		1795		1796	
	(*a*)	(*b*)	(*a*)	(*b*)	(*a*)	(*b*)	(*a*)	(*b*)
	£		£		£		£	
Jan.			65005	3800	35560	9790	21085	5762
Feb.			61905	3097	35315	9428	17460	5172
March			56635	9925	35300	10026	14260	8034
April			54005	8411	34325	8655	9340	7717
May			53825	6152	32535	8643	4795	2964
June	29800		59528	4783	28830	3453	2465	949
July	50105	3000	50080	4904	31470	5039	1565	525
August	53025	3000	46730	5779	32230	6933	1035	7
Sept.	53865	3000	44215	6738	32630	10349	775	*224*
October	53270	3000	38490	11319	28410	10590	545	*161*
Nov.	62695	3000	36575	7949	26160	8844	465	*264*
Dec.	68510	3000	37140	8775	23615	6369	400	*349*

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[1] The three banking houses were Heywoods, Clarkes and Gregsons.

TABLE III.

(*a*) NET credit balances in 715 accounts in Heywoods' ledger at the end of each month.
(*b*) Withdrawals during each month from Heywoods.
(*c*) Number of Heywoods' accounts closed in each month.

1793	(*a*) £	(*b*) £	(*c*)
January	103855	30246	18
February	105207	14526	20
March	82589	48734	117
April	57991	36811	106
May	41880	17457	42
June	33239	23051	24
July	33878	18630	16
August	41326	7199	7
September ..	65359	12153	3
October	65900	8176	8
November	66964	9272	11
December	77723	29381	15

Withdrawals—	July–September ..	1792 ..	£45553
	October–December ..	,, ..	£47371
	January–March ..	1794 ..	£23855
	April–June	,, ..	£29162

Industrial Technologists and the Social Sciences[1]

By Ronald S. Edwards

Technological education is at first sight hardly a suitable subject for an inaugural lecture by a professor of economics. But in the course of the great debate which has taken place over the last six years there has been much discussion of foreign educational institutions where technological students receive a grounding in the social sciences—economics, politics, sociology, psychology, and other disciplines, such as law, history and philosophy, concerned with man's behaviour in community life. While I can lay no claim to be an expert on this matter, I thought it might be useful to attempt a brief appraisal of the case for including social studies in technological education, and of the implications of the case for this country. It also seemed to me that a lecture which marked the establishment of an economics chair with special reference to industrial organisation would be a suitable occasion for the task.

I shall divide my discussion into four parts. First, I shall say a word or two about the impact of natural science on industrial development, and the problems it creates. Next I shall consider whether and how the solution of these problems could be facilitated by including social studies in the education of engineers and the other applied natural scientists whom we call technologists. I shall then go on to consider whether the curriculum changes suggested could best be met through new institutions or by the adaptation of existing ones. Lastly I shall outline what we are doing in this matter, and what I hope we shall do, here in London University.

Industrial Development and the Educational Problem

It seems to me that we are today in the course of an industrial revolution the magnitude and significance of which are still not fully recognised. As an example of what is happening, look at the pharmaceutical industry. Not many years back it was devoted to galenicals and a few animal extracts. Today, while the discovery of active elements and their extraction from natural sources are important and sometimes dramatic stages in development, success or failure is coming increasingly to depend on the science and the economics of advanced chemical technology. Fermentation in the antibiotic field, and synthesis in the vitamin and hormone fields, to cite but two examples, have given the industry undreamed-of opportunities but coupled with undreamed-of uncertainties. The lines of research, the choice of development projects, the process and production decisions—at each stage major hazards arise, hazards which are the severer as the pace of competition forces production decisions to be taken on early scientific and clinical reports which may fail to be supported by later experience or be rapidly rendered obsolete by even newer knowledge. Examples are common, not merely of drugs replacing one another, but, as with the sulpha-drug chain, of drugs being rapidly supplanted by chemical variants of themselves with improved medicinal properties.

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[1] An Inaugural Lecture in the Chair of Economics with special reference to Industrial Organisation, at the London School of Economics, on 11th October, 1951, under the chairmanship of Sir Roderic Hill, Rector of the Imperial College of Science and Technology.

In such industries created, or recreated, out of physical and biological science, the need to study the direction, strength and interplay of scientific, technological and market forces, and to match skill in forecasting with skill in making and modifying decisions is obvious.

But we should misconceive the man-power problem created by technological development if we thought to solve it merely by adding to the existing stock a relatively small number of highly educated and well-trained men. This for two reasons. First, the old dichotomy between scientific industries and craft industries is becoming increasingly unrealistic. Even the ancient crafts—leather, linen, flour-milling, pottery and the like—are feeling the impact of science on their materials, processes, products and markets. Secondly, the more complex industry becomes, the more subject to uncertainty, the more must rapid and effective adjustment depend on *understanding* all down the line. So far as it can be attributed to educational factors, the success of those countries which have applied science more rapidly and effectively to their industries than we have is due not to a small number of *very* well-educated men at the top but to a large number of *fairly* well educated men in the middle ranks. Our need in this country is not to develop an intellectual *élite*—which we know very well how to do—but to raise the level of education and training over a wide field and from the school level upwards.

It would be wrong, therefore, to pose the educational problem simply in terms of the conflict between breadth and depth of learning. For a large proportion of the population it is both possible and necessary to extend education in both directions. I stress this point because my discussion this evening is limited to education at the professional and university level, at which level effectiveness does involve concentration on an ever narrowing field as the sum of knowledge expands.

Since long before the end of the war this problem of higher education has been engaging attention. The deficiency in the British output of university-trained men in all faculties has been recognised and remedied to the extent that there are now 85,000 full-time students as against a pre-war figure of 50,000. The numbers reading technology have been increased to 11,000 from a pre-war figure of 5,000. Discussion is still active, however, not only on the question of numbers, but on the kinds of education needed, and on the kinds of educational institutions that should be developed. Since the Percy Report of 1945 there has been a regular spate of advisory bodies, committees and counsel on the subject of technological, commercial and management education.

In the course of the debate the need to develop a training which provides not only scientific and technological knowledge but also a general understanding of the economic and organisational problems relating to policy decisions has received increasing recognition. This need has sometimes been confused with a desire that education should be broadened by the inclusion of so-called cultural or liberal elements. No doubt educational specialisation raises great problems in regard to the æsthetic and ethical aspects of life. These problems lie outside my subject, but I am tempted to risk one observation. I do not believe that *any* problem is solved merely by throwing into professional courses a few subjects traditionally regarded as liberal in character. On the contrary, I believe that, so far as the formal intellectual side of education goes, general and vocational needs pull in the same direction. Both call for the discipline of *intensive* study, which necessarily means study over a narrow field, and both call for an understanding of how this field is related to other fields of knowledge and to the problems of society.

As I said at the beginning, enquiry into the need for changes in our educational facilities has been much stimulated by international comparisons. I cannot do better than quote Mr. Patrick Johnson, managing director of Power Jets (Research and Development) Ltd. After asserting that the best engineering student of this country is the equal of any, he points out that the best is really outside the problem, it being upon the average engineer that national efficiency largely depends. He then goes on: "The mark, in my opinion, of the product of a good Continental school of technology is a grasp of affairs. His specialist engineering knowledge is high, but then so is that of his British counterpart. One might say that the average Continental graduate is more able to relate his engineering to life. By this nothing grandiose or philosophical is meant. It merely means that the average graduate of a Continental institute of technology can argue more consistently and clearly, write better, make his case more forcibly to the enterprise he serves, and comprehend the social purport of his service. A knowledge of economics lets him see the world of industry as a whole; he is at home with general questions like the mobility of labour. Further, and even more important, the good Continental graduate in technology is potentially an administrator. He has had some training for administration and the whole atmosphere of his education has suggested to him that administration matters. Should he be offered a place on the board he will be competent to fill it. Because he can relate his abilities to the contemporary international problem he is a good "export-driver", he has been given some knowledge at least of the countries to which he travels—their history, traditions, arts, politics—a knowledge usually completely lacking in his British counterpart."[1]

American schools of technology also include humanistic and social science elements in the education of their students. Thus the Massachusetts Institute of Technology has for many years devoted resources to the social sciences, and is seeking to develop a school in this field with a status equal to that of its great technological departments. The Institute's Committee on Educational Survey has recently underlined the importance it attaches to helping prospective scientists and engineers to understand the forces that are moulding contemporary society. All the M.I.T. first degrees require some work in the social sciences, and higher degrees are offered for subject groupings which straddle the social sciences, the natural sciences and technology. Recently a large endowment was accepted to allow the Institute to develop a School of Industrial Management for special training and research in this field. Other schools of technology are also developing along these lines. Thus, the Carnegie Institute of Technology in Pittsburgh has been heavily endowed for teaching and research in the social sciences and has established a School of Industrial Administration.

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[1] "Engineering Education on the Continent," *The Times Educational Supplement*, February 3rd, 1950.

The Case for the Social Sciences in Technological Education

But merely because the products of certain types of university institution show a grasp of affairs it does not necessarily follow that this must be due to the fact that their education has included the social sciences. Indeed, in the case of Switzerland—a country with which I have some acquaintance—I would argue that the technological graduate owes as much to his earlier school education and home upbringing as he does to the excellent training he receives at the Federal Institute of Technology.

However, when due allowances have been made for other factors I believe that a knowledge of the social sciences is a significant element in technological education and not just a fad that will pass like so many others. I shall argue this case mainly in terms of economics for here I can speak with the confidence born of personal experience. It so happens that I did not begin to study economics seriously until I had completed a professional training in another field—accountancy—and I could therefore assess the difference it made to my understanding of industrial questions. By one of those strokes of fortune that shape one's career, I took a correspondence course offered by the University of London's Commerce Degree Bureau, of which Professor (now Sir Arnold) Plant was the chief adviser. Arnold Plant taught me economics and how to apply economics to business problems. It is particularly pleasant to recall my debt to him on this occasion—twenty years to the very week after his own inaugural lecture in this School. Although I doubtless owed as much to the teacher as to the subject, my experience then and subsequently in public service and industry has convinced me that the study of economics has vocational significance, as well as educational value, to anyone who hopes to make a career in the professions concerned with industrial affairs.

Perhaps I should explain at this point what I mean by the study of economics. There are two possibilities both of which are useful and between which I should not want in practice to draw a sharp distinction. First, it is possible for a technological student of some maturity, without too serious inroads on his time, to acquire an understanding of what economics is about and of those aspects of affairs that economists study. Secondly, it is possible for him to embark on the discipline of economic theory or analysis. This is a larger task, but fortunately economics is a subject in which the simpler tools are as yet the most useful ones.

Let me quote from the masterly oration which Professor Lionel Robbins delivered on the 53rd anniversary of the founding of this School: "If you take", he said, "any of the simplest propositions: that value depends on number as well as class—the basis of the marginal analysis: that you cannot have your cake and eat it—the so-called opportunity cost principle: that the money which is paid over the counter is received by somebody on the other side—the essence of the aggregate equations: if you take the consequences which flow from such invincible truisms as these, it is my experience at least, even among highly educated people, that they are by no means obvious. Indeed, I have sometimes noted that, in their practical applications, they not infrequently appeared to have all the bewildering and irritating properties of new truth."[1]

I am sure that Professor Robbins hits the nail on the head. The elements of economics are simple—once you have grasped them. But perhaps because the basic postulates derive from human experience there is an all too common presumption that every human being is born with a grasp of the subject and that formal training is unnecessary. But the technologist who studies economics seriously will have, I believe, a part of growing importance to play in industrial affairs.

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[1] "The Economist in the Twentieth Century": *Economica*, May, 1949, p. 99.

Take, for example, the problems of research programming, problems faced at the level of the firm, the industry and the community. They involve scientific, technological, psychological and economic considerations combined with a readiness to guess and to gamble. Even the most hardened supporters of the guess-and-gamble school would not maintain that we can learn nothing more than we know already about the economics and the organisation of research, and about the framing of research programmes. As technological competition increases in severity, more and more firms will be faced with investment, price and output decisions involving questions of invention, innovation and obsolescence. If the discussion of these questions is to be efficiently conducted the specialists on the economic side and the specialists on the technological side must be able to make one another understand. At the moment it is frequently very difficult. Scientists and engineers often speak in bewilderment, anger or pity of financial men who just cannot appreciate the importance of what the scientist or engineer wants to do. Financial men speak, often with irritating condescension, of the scientist's or engineer's inability to understand that men and equipment have to be paid for. We have trained far too few men who can bridge the gaps between existing specialisms, and one of the most important is that between the technologies and economics.

Not only could men so trained make contributions in the world of affairs, they could also help to advance economics itself. Though I am no expert it seems to me that there has been a tendency for economists to concentrate rather too much on testing the internal consistency of the propositions of their theory, and to developing its logic, rather than to examining and improving the usefulness of its assumptions. Despite the philosophical questions involved in the meaning of verification, I believe that in industrial economics much useful work is waiting to be done observing facts and refining hypotheses. Since some of the facts are in complex scientific or technological settings the natural scientist or technologist trained in economic analysis is excellently equipped for this type of work.

Lest it should be thought that these are merely the opinions of an academic economist let me call the testimony of an industrialist. Dr. Tugendhat, a managing director of the Manchester Oil Refinery Ltd. and Petrochemicals Ltd., writes as follows: "The march of technological change in the world has created totally new conditions to which, if they are to survive, the industries of this country have to adapt themselves. To the elucidation of these changes both the economist and the technician have important contributions to make. Hitherto, however, these contributions have tended too much to be made in watertight compartments, whereas in our judgment they can only attain their full effect if they are brought into close conjunction."[1]

The Advisory Council of the Department of Scientific and Industrial Research has examined this matter and urged that more should be done. "We consider", it said in its 1948/9 report,[2] "that the linking of physical science and engineering with economic studies within industry holds much promise for the future, and we regard the training of suitable staff as a matter of importance at the present time". In future some of the maintenance awards made each year by the D.S.I.R. will be available for honours graduates in pure or applied science to be trained in the investigation of problems concerning industrial productivity and organisation.

That it will help them to understand the economic issues involved in policy is part of the case for including the social sciences in the education of technologists. But it is by no means the whole case. I believe that a study of the social sciences is an important element in education for *administration*.

Most leading positions, and even intermediate positions, in industry call for both professional knowledge and administrative skill, the proportions varying from job to job. The problem of educating administrators, therefore, is not one of educating a class apart. It is a general problem of professional education, and one which is still hotly debated. In this country the apprenticeship tradition runs deep and great emphasis is laid on practical training. The majority of our lawyers, accountants, and even engineers have been trained from schooldays under qualified members of their profession and have worked for their examinations by evening study. The system has merits. It inculcates habits of hard work, thoroughness, and an understanding of the importance of detail which sometimes eludes the university graduate. But if the studying is to be really well done, rather than crammed, it calls for much physical stamina. Moreover, the student unless he is very lucky will not come into touch with minds actively concerned with the development of the scientific background to his professional field.

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[1] Extract from a letter accompanying the offer by the Manchester Oil Refinery Ltd. of a gift to the London School of Economics to assist it with its teaching and research in industrial economics.

[2] Cmd. 8045, p. 13.

The increasing number of men who are now going to universities is forcing the professions to think through this problem afresh. But even among those who believe that there should be an extension of full-time university-level education for the professions, there are many who are sceptical of what can be done to make a good administrator. We often hear that you can only learn to manage by managing. However, this kind of comment is beside the point. No one in his senses believes that you can make an administrator at a university any more than you can make an engineer there. But just as the education of a future engineer can be concentrated largely on those subjects which will, when backed by practical experience, help him to become a good engineer, so can the education of one who expects to be concerned with administration include an element which will help him to understand and in due time to tackle the problems of administration.

The social sciences have a useful part to play here—not because they are more " liberal " or better intellectual disciplines than the natural sciences or technology—some of them, at least, are not yet as good—but because they are concerned with knowledge and problems which bear directly on the task of human organisation. The nature of decision-making, the role of authority, the problem of communication, and similar questions which are basic to administration, are problems of the social sciences. There are, of course, limits to what the student can learn in any way save by experience. As Mr. G. F. Thirlby has put it, the student can be sent from the university knowing something of the rules of the game ; having studied how games have been lost and won, having planned moves in imaginary games, having practised some of the subsidiary techniques in isolation. But he will not, as part of his academic course, have played in actual games, and he cannot be certified as competent in the practice that achieves results.[1]

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[1] Paraphrased from a manuscript by Mr. Thirlby, an abridged version of which appeared under the title " The University Commerce Curriculum ", *Sociological Review*, Vol. xxxiv, July-October, 1942.

Even with these limitations there is a growing acceptance of the view that courses focused on studies relevant to administration are worth while as part of the education of technologists. The Percy Report, for example, considered that the almost complete avoidance, in the academic courses for technologists, of subjects concerned with organisation and management was a severe handicap to them later in life. " Admittedly ", it said " there is much in this field that can be learnt only from experience ; but there is a body of knowledge, awareness of which may greatly facilitate the process of learning. This body of knowledge should be made available both at the undergraduate and at the post-graduate stage."[1]

I should like now just to touch on the question of length and timing of courses. If we are to add work in the social sciences to technological curricula something else must be left out or the courses lengthened. The average Continental and American courses are longer than ours, in some cases substantially longer. In this connection I was much struck by a passage in the report of the M.I.T. Committee I have already mentioned. " America's uncritical faith in education," it said, " is not an unmixed good. It has increased the reliance upon educational institutions to provide the kind of professional training that should be acquired through experience on the job. It has over-emphasised formal educational requirements for entrance into certain fields. It has encouraged, we sometimes fear, the use of the graduate school as a shelter for the timid who wish to postpone the shock of entering the competitive world. For some kinds of professional work, a prolonged formal education is indispensable. For others it is not."[2] I am sure we should heed this warning and not swing from one extreme to another. It is possible, even within the framework of our existing first degree courses, to give the technological student a useful introduction to economics and cognate subjects, but in many cases an extra year, or two years where technological studies are to be pursued in parallel with social and administrative studies, would pay handsome dividends.

This in turn raises the question of whether it is desirable to spend some time in industry before the serious study of administration is begun. The weight of professional opinion seems to be in favour of this, and I am sure it is most desirable wherever it can be arranged. But the better here may well be the enemy of the good. Men going out into industry intending to come back to the university for a year or two at a later date commonly find the exigencies of their work prevent it. It is true that they will in future be able to attend short courses in early middle life, such as those provided by the Administrative Staff College—and I believe that such courses have a great future—but these are not, and are not intended to be, substitutes for postgraduate study. The vast majority of Americans who study subjects relevant to administration do so before they start seriously on their working careers.

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[1] See *Higher Technological Education :* Report of the Percy Committee (Ministry of Education, 1945), para. 71.

[2] Report of the Committee on Educational Survey to the Faculty of the Massachusetts Institute of Technology, p. 24.

THE ORGANISATIONAL QUESTION: NEW INSTITUTIONS OR THE ADAPTATION OF EXISTING ONES

If it is accepted that there is a case for including social studies in the technological curriculum, we must next face up to the institutional probiem it poses. One of the reasons why advocates of great authority have urged that we should parallel the Continental and American institutes of technology in this country is that they have developed curricula that include the humanistic and social studies. But I do not think we are carried very far by arguing about institutions in general terms. As a lay observer of the discussion on institutes of technology, it has seemed to me that there are at least three sources of confusion that have not always been avoided.

First, in the process of simplification over-sharp contrasts have been drawn between institutes and universities. Though on the Continent institutes educate the bulk of the technologists they certainly do not do so in the United States, where of the schools with undergraduate engineering curricula (accredited by the Engineering Council for Professional Development) only one-fifth are in separate institutes, all the others being within universities or colleges. Undergraduate curricula differ from place to place but the differences do not mark off the institutes as a class from the universities as a class. Some of the well-known institutes derive their reputation from postgraduate and research activities, but so do some of the universities. Some of the institutes undertake very large amounts of research sponsored by industry and Government, but, again, so do some of the universities.

Moreover, discussion of the institutes as a type masks the considerable differences between individual institutes. Some concentrate heavily on engineering; others have a high proportion of physical science students. Some in their educational approach concentrate on problem-solving to emphasise the arbitrariness of scientific boundaries and to develop integration; others are highly sceptical of this approach. Even the same subject heading can cover very different things. Thus history in some institutes is political and social, and in others technical and industrial. As for the so-called humanities, they appear to cover everything from Shakespeare to wage rate-fixing.

The second danger is that we pick out the best examples of a type of institution, and credit the qualities we admire to the institutional form, although this may be largely irrelevant. Thus the M.I.T. has a renowned graduate school primarily because it has an excellent staff, the pick of America's graduate engineering students and, because of these, the opportunity to undertake many important research projects. To talk of setting up an M.I.T. or a California Institute of Technology in this country is not much more meaningful than to talk of setting up, say, Oxford or Cambridge colleges in America. Reproduction of bricks and mortar, facilities, even methods is not the same as reproduction of a reputation which has to be built on men *and* on achievement. Indeed, there are some Americans acquainted with the problems of this country who think that the concentration of discussion on outstanding institutions shows a misconception of our real problem, and that we should do better to study some of their large State universities.

The third danger is that we give insufficient weight to changes in *fact* that have not yet been followed by changes in *form*. It has not been sufficiently emphasised that the major changes in the more successful institutes, their growing concern with basic natural science and with humanistic studies, have carried them, and are carrying them still, towards rather than away from the idea of the general university.

The grouping of subjects in sciences and of the sciences within institutions is a matter of compromise in which educational advantages and disadvantages, including those important factors tradition, atmosphere and personalities, must be weighed with questions of administrative practicability and the availability and cost of resources.

According to the way they judge these issues in the British setting, experts have variously recommended independent and self-sufficing technological institutes, institutes geographically close to universities, institutes associated with universities, institutes inside universities but not departments of them in the traditional sense, and university departments of technology as they already exist.

The recent White Paper[1] has made it clear that the Government is not prepared to proceed with the founding of a technological university at the present time. But whether the expansion of technology takes place in the existing universities and certain of the existing technical colleges, or whether policy is changed and one or more major new institutions developed, there is one point on which the leading experts agree. At the highest level technological education must range far and wide over many disciplines and lean heavily on the basic sciences. Whatever the institutional background may be called, the facilities needed are at the level, and of the diversity, commonly associated with general universities.

As Lord Eustace Percy put it in a letter to *The Times* published 6th December, 1949, to propose the foundation of an institute of technology on the Massachusetts or the California model or a *Technische Hochschule* on the Continental model, is to propose the foundation of a university. The danger as he saw it was that current discussions might tend " to the creation of some mongrel college, less well-endowed and less self-governing than a university, where the study of technology will be based on something less than the best teaching of fundamental science, and the study of industrial administration on something less than the best teaching of philosophy, history, economics, and industrial medicine."

This brings me straight to the crucial question. It might be thought that there was a world of difference between providing facilities for technologists to study the social sciences and administration, and providing full-scale departments in those subjects. That this difference is not so great as might be supposed is one of the important lessons we can learn from American experience. Subjects provided on a service basis have not flourished. The economics, for example, taught in many of the engineering schools, in institutes and universities, has made little contribution to knowledge and probably not much to education. If an institution wishes to develop a subject, even if it wishes merely to have it well taught at university level, it must attract able men and this will be possible only if the subject is given full status and those responsible are allowed to develop it freely and almost certainly to establish their own graduate school. This is not a theoretical conclusion ; it has been reached by American observers of great experience. The level of teaching and research in the social and administrative studies must match that in the technological studies.

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[1] *Higher Technological Education.* Cmd. 8357. 1951.

If enquiries were to be made of American institutes which have large financial resources available for building up first-class staff they would, I think, confirm that even in the United States there is difficulty in finding social scientists of real quality and experience who have directed their thinking and research to the problems of industry, its economics and its administration.

In Great Britain the shortage is even more acute. At present the only major sources of higher teaching and research guidance in the social sciences are the existing departments in the universities. The best hope of progress, if technology and the social sciences are to be brought together, lies in close inter-departmental and inter-collegiate collaboration within the universities. If technologists take seriously to the study of the social sciences, man-power for teaching and research will have to be expanded, and as this happens it will be possible, indeed desirable, to try out new patterns of educational organisation. But it is better to face the complications and the limitations of co-operation, and the rather slower development that this may entail, than to establish prematurely new divisions of the social sciences that, with the present scarcity of good and well-trained men, could not be staffed at the right level, and which in consequence might bring the whole development into disrepute.

Some who have studied the question of higher education in administration subjects advocate the establishment in this country of one or more university postgraduate business schools on the American model. The best American business schools have won great renown. But again, it does not follow that by copying this institutional form we should be sure of emulating either its finest examples or its best attributes. The man-power problem is the same whatever the institutional form. Only those with no experience of trying to secure for university posts in business subjects men who are competent practitioners, and at the same time gifted for and interested in teaching and research, could believe that we have any choice but to build slowly or badly.

Moreover, we should, once again, be cautious in copying institutions which may be in process of change. The practical, feet-on-the-ground attitude of the American business schools is admirable up to a point, but it can easily be carried to a stage which inhibits fundamental enquiry. I believe that this is increasingly recognised, and one result may be that the American schools of business and the economics departments of the universities, which have tended to draw apart, will in future draw closer together again. There are at least a few straws bent in that direction.

It seems to me that university business courses must gain from integration back to the sciences on which they depend heavily. And if this is so they must gain from being bedded in centres where these sciences are being studied on a considerable scale and at high level. Thus, the One-Year Postgraduate Course in Business Administration offered by the London School of Economics, which embraces an array of practical subjects such as finance, accounting, labour, production and distribution, is actually and potentially the richer for the fact that it can call on great departments of economics, statistics, law, history, sociology and public administration.

So far as the study of *industrial* administration is concerned, there should not only be a linking with the departments of the social sciences but also with departments of engineering. It follows that any attempt to set up special institutions which would not have close at hand first-class facilities in these various fields would start under a severe handicap. In any case we should not be too ready to raise very high walls round the study of industrial administration, since we cannot say with confidence where the walls should be. The subject is not yet a science. We know and can teach effectively a good deal about methods and techniques. We know that administrative theory takes us into only partially mapped areas of economics, psychology and sociology, and that it is important to understand the political, social and economic forces that have to be reckoned with in practice. We know that industrial administration has something to learn from public and military administration. We know that it is necessary to comprehend the main engineering and chemical processes by which materials are turned into products. But we also know that the best teachers in the field are least given to talking about their " science ", and that it is not yet certain what will be the important edifices in this intellectual city. Therefore, whatever walls we erect had better be low and easily movable.

I would not wish, however, to leave the impression that I think we should move forward with infinite discretion and infinite slowness. Nothing is further from my view. There is an enormous amount to do in this task of building in the social sciences and administration studies to technological education. But a beginning has been made. I have no time left to speak of the developments in other universities and in the technical colleges, but I would like to conclude with a brief word on what is being done in London University.

Developments in the University of London

Long before my time the School of Economics welcomed technologists among its members, and from its beginning, the One-Year Postgraduate Course, which I have just mentioned, has included some engineers and other scientists as students. But since the war the need has become more widely recognised and this has brought new opportunities. In 1946 the School decided to offer a course of one day a week of Economics and Administration for Engineers and Applied Scientists. Largely through the co-operation of our sister school, Imperial College, the numbers attending the course have steadily grown until this year about one hundred of the Imperial College third-year men are enrolled, with a sprinkling of postgraduate students, students from other colleges, and from the public service and industry.

The curriculum is still in an experimental stage but it is designed to introduced the student to those parts of the social sciences that lie closest to his own professional field and to the historical, legal and economic setting in which he will in due time practice his profession. The students follow a course of introductory lectures on recent economic developments, on the structure of modern industry and on the economics of labour. Another course introduces them to the organisation of business enterprise and problems of business policy. They attend classes on English law and on industrial history, and also a class in which one term is spent learning to read the published balance sheet of an engineering company and another discussing problems of boom, depression, inflation and full employment illustrated by experiments on the "monetary flow" hydraulic machine. This last is a great success with the students, for they not only use a piece of apparatus, but they have it explained and demonstrated by its inventor, Mr. Phillips, an engineer turned economist. It is satisfactory to note that this course was commended by the F.B.I. in its 1949 report on the Education and Training of Technologists.

The relations being developed between the School of Economics and technological faculties in other colleges are not the only developments of this kind in London University. For example, at University College, which has law and economics departments of its own, engineering undergraduates attend courses arranged by specialists in these subjects.

We are thus making progress but we cannot justify taking much of the undergraduate's time for work outside his special field. With the present length of undergraduate courses it is at the postgraduate level that we have our greatest opportunities, especially in the field of industrial administration. For the natural scientist or engineer who wishes to study the social sciences and administration the University of London has it in its power to mobilise facilities matching those available anywhere else in the world. In reverse, the University has it in its power to meet the need—complementary to the one I have discussed in this lecture—for social scientists to acquire an understanding of the main lines of technological development.

But new and wider syntheses will not create themselves; they have to be worked for. New structures, light enough to be borne on the existing fabric of university organisation but strong enough to ensure coherence and direction, will have to be set up. While building on the courses already existing, arrangements will have to be made for graduate students who want to work on technological, social science and administration subjects in parallel; the minimum that can be usefully taught of any subject must be gauged and, where this has not yet been done, curricula devised for teaching it to non-specialists; higher degree regulations may need to be adjusted; and the co-operation must be sought of the professional bodies interested in the various fields. But there is nothing impossible in all this. The University and its Schools have both a great opportunity and a great responsibility to foresee and to meet the needs of our complex industrial community.[1]

The London School of Economics.

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[1] The publication of this lecture affords a welcome opportunity to thank the Rockefeller Foundation, the Manchester Oil Refinery Ltd., and Mrs. A. W. Bryher, whose generosity has made possible my enquiries into European and American educational and research institutions over the last few years.

Notes on Linear Programming[1]

By G. Morton

1. INTRODUCTORY

In the last few years the technique of linear programming has been developed—mainly in the United States—with great rapidity and with a measure of success in practical applications which makes it likely that it will become an important tool of the economist. If in our days the use of any science for purposes of defence is a yardstick of achievement then economics is indeed coming of age; it would seem that the most important results have so far been achieved in war and in preparations for defence, but it does not follow that there is no need or possibility to use this technique for peace-time purposes.

The expression " linear programming " while not entirely inappropriate is somewhat misleading. The stress should be on " programming " and linearity—while useful as a simplification—is by no means all-important. Hence the alternative expressions " programming of interdependent activities ", " activity analysis ", " theory of the allocation of resources ", etc. For the sake of brevity " linear programming " will be used throughout, and the examples given below will in fact be of the linear kind only.

It will be recognised that analysis of problems of this type has been familiar to economists for a long time. It is the analysis of production with fixed technical coefficients and the analysis of joint products. Fixed technical coefficients mean that, for a given process of production, only one combination of factors of production is possible, so that there is a fixed factor proportion. Rigidly joint products mean that products are supplied in a fixed proportion. Both of these furnish instances of production with linear constraints of the type assumed in linear programming analysis.

Thus a production possibility curve can be thought of as composed of a number of straight parts, and instead of a continuous smooth curve we shall have to deal with a line with "kinks".[1]

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[1] The author, while taking full responsibility, wishes to acknowledge his indebtedness to Miss H. Makower for helpful criticism in connection with this article.

From some points of view this discontinuous treatment may seem inferior to the continuous one where one can derive equilibrium conditions in an elegant and general fashion by means of the differential calculus. The advantages of the present type of approach are, however, very real. In most forms of production (agriculture being one of the best-known exceptions) engineers and managers are thinking in terms of fixed combinations of factors for each process—say for each type of plant, machinery, etc.—and a production function has little meaning for them, while the substitution of one process for another, each of which has a fixed factor proportion, is a real possibility.

Hence it seems likely that the technical data one can obtain from a firm or industry would refer rather to a number of alternative production processes, each requiring definite factors of production in fixed proportion, than to a production function for "activity as a whole" using such broad concepts as "labour" and "capital". Similarly, on the consumption side, in so far as consumers require a balanced diet (in terms of nutrients each of which is obtained in fixed proportions from any one food), we find a constant rate of substitution between the different "processes" (in this case foods) that "produce" nutrients. Thus it may be realistic to depict a consumer's indifference curve for two goods as a line with a series of corners.

Whether one believes that production indifference curves, as commonly used, should be broken down into a series of *linear* segments or into *curvilinear* segments it seems clear that some breakdown is necessary. If we are ever to obtain realistic production functions empirically we shall have to distinguish between different processes of production and to denominate our factors in terms more homogeneous than "land", "labour" and "capital".

The question which leads us to seek to establish precisely the nature of production conditions (at first conceptually, then empirically) is this: which production processes are efficient and which are not, given the end to be attained? The technique of linear programming is being developed in order to supply practical answers to such questions.

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[1] It is, of course, admissible to represent a curve by straight lines and to approximate the given curve by a sufficiently large number of lines to any required degree. There is nothing new in the substitution of many simple operations for one complicated one.

2. THE CHEAPEST WAY OF ROUTING SHIPPING

Consider, for example, Professor Koopmans' transport problem[1] in its simplest form: there is a certain number of empty ships of the same type at ports A and B which we want to redeploy to another two ports, C and D. We know the time it takes to move a ship between any two ports. The task is to find that way of redeployment which will minimise our total aggregate travelling time. Here the number of ships at the ports of departure, A and B, stands for our available resources, the number of ships at ports C and D are our final products, and the total travelling time represents the cost of production. The problem is to minimise this total travelling time. If the number of ships required at C and D does not exceed the number available at A and B the programme is called "feasible". To give a numerical illustration: the number of ships available at port A is 6, and at B 4, the number wanted at C is 7 and at D 3. The time from A to C is 5 days, A to D 7 days, B to C 6 days, B to D 9 days. This information can be set out in the following table:

		C	D
		7	3
A	6	5	7
B	4	6	9

It can be seen that if the number of ships going, say, from A to C is given, all the other movements are determined. Furthermore, the number of ships going from A to C cannot be less than 3, or more than 6. We can, therefore, write down the total cost corresponding to all possible numbers of ships going from A to C, viz.:

Number of ships moving from A to C	Aggregate number of travelling days for redeployment of 10 ships
3	60
4	61
5	62
6	63

The numbers on the left, which indicate different ways of deploying the ships, can be thought of as corresponding to different methods of production. We obtain in this way a function showing the variation in total cost of producing a fixed output (7 ships at C, 3 ships at D) with different methods. This cost function will appear as 4 points lying on a straight line.

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[1] *Econometrica*, Vol. XVII, Supplement, July, 1949, pp. 136–145.

For, whenever we substitute for a ship going from B to C one from A we shall also have to substitute for one ship going from A to D one from B. The effect of this on total cost is found as (cost of substitution of a ship A to C for B to C = + 5–6) plus (cost of substitution of a ship B to D for A to D = + 9–7), and is here equal to 1. (This is also the slope of the continuous straight line one would obtain with the present data if ships were divisible.) Hence, the fewer ships are sent from A to C, the lower total cost; also, it is impossible to send less than 3 ships from A to C (otherwise we should have negative numbers elsewhere), and this is therefore the number giving lowest total cost. (In general, there are no local minima or maxima on a straight line; these are obtained only by boundary conditions imposed on the range of variation of the variables under consideration. In other words we must go all the way in the direction of an improvement until we come up against such a constraint or boundary condition, and in this we can derive little help from the calculus.) Fig. 1 shows the above "cost curve".

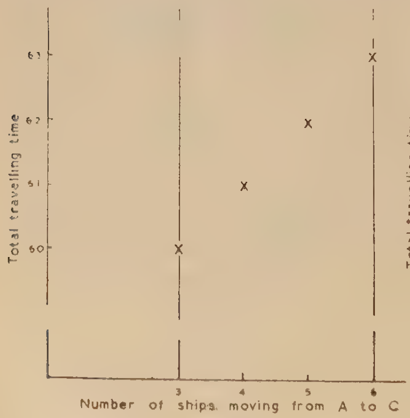

Fig. 1

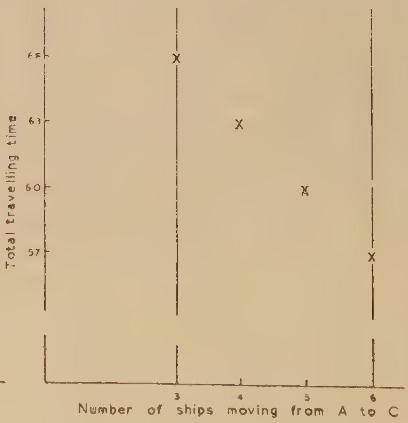

Fig. 2

If in the above example the travelling times from A to D and from B to D (7 and 9 respectively) were interchanged, the cost function would be:

Number of ships moving from A to C	Aggregate number of travelling days
3	66
4	63
5	60
6	57

and whereas before the minimum cost was found at the lower limit of the number of ships moving from A to C (viz. 3), it is now at the upper limit (viz. 6). The situation is shown in Fig. 2.

3. The Cheapest Way of Achieving a Given Diet

A somewhat more complicated example is that of Professor Stigler's minimum food cost.[1] Here it is required to find the minimum expenditure necessary to satisfy or exceed given requirements of nutrients when the prices of foods and their nutrient contents are known. Each food supplies or " produces " certain amounts of nutrients in fixed proportions, and in this case the restrictions on the minimum amounts of the various foods consumed (apart from the obvious but important one that they cannot be negative), are due to the nutrient conditions that must be fulfilled.[2] If we consider two foods only, and measure them in terms of expenditure (with given prices) rather than of quantities, the nutrient conditions will be represented as straight lines in the positive quadrant of a plane with Cartesian coordinates corresponding to the two foods. Since our foods are normalised in terms of their prices, the price line itself will be sloping down to the right at 45 degrees. Consider, then, the case of two foods, say bread and meat, and of two nutrient conditions, say calorie requirements and protein requirements, that must be fulfilled. There are three possibilities here, shown in Figs. 3 (*a*), (*b*) and (*c*), respectively. The two lines may not intersect in the positive quadrant at all, i.e. it may not be possible to fulfil both requirements simultaneously (see (*a*)). Protein requirement is satisfied *a fortiori* whenever calorie requirement is satisfied and the cheapest way of satisfying the latter is by consuming the necessary amount of one food (bread) only. The dotted line in Fig. 3 represents the price line and the nearest point at which it reaches the outer line corresponding to the one " effective " nutrient condition lies on the horizontal axis. A programme requiring both nutrient conditions to be fulfilled exactly would not be a " feasible " one. In (*b*) the two lines intersect in the positive quadrant, it is possible to fulfil both requirements exactly but it is cheaper to overfulfil one of them as shown by the price line. The meaning of this is that bread is " cheaper " as a source of both calories and protein. This is, of course, not the only case in real life where it pays to be " wasteful " in this sense. The case where both conditions are simultaneously fulfilled and no improvement is possible is shown in (*c*) where one line is steeper than 45 degrees and the other less steep.

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[1] *Journal of Farm Economics*, Vol. XXVII, May, 1945, pp. 303–314.

[2] For a precise formulation see Appendix, pp. 407–409.

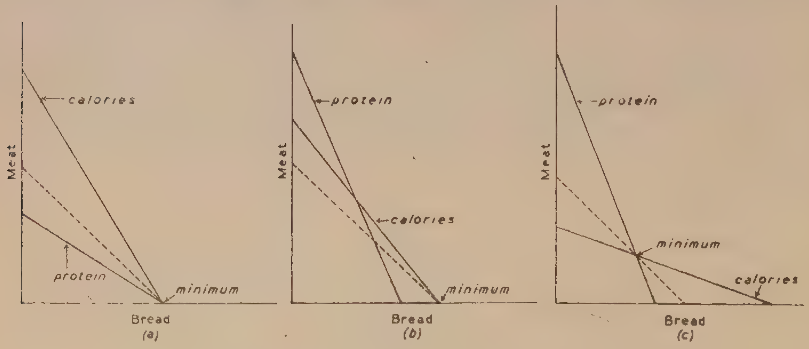


Fig. 3

If several nutrient conditions are effectively present we obtain a kinked boundary line (points on which are called by Koopmans " efficient ").[1] It separates that part of the positive quadrant where some conditions are not fulfilled (down and to the left) from those where all are overfulfilled ; along the boundary some conditions are exactly fulfilled. Again the point of minimum expenditure satisfying the stated requirements is where a line at 45 degrees touches this boundary. To distinguish this kind of minimum from that in the continuous case, it has been called " corner type "[2] or " generalised tangency " solution.[3] If part of the boundary has a slope of 45 degrees, minimum cost will be unique but its distribution over the two foods will be arbitrary within that range.

[1] *Econometrica*, Vol. XVII, January, 1949, p. 75.

[2] cf. L. Hurwicz, *Econometrica*, Vol. XVII, April, 1949, pp. 161–2.

[3] cf. P. A. Samuelson, *Economica*, Vol. XVII, November, 1950, p. 363, footnote.

The points on the boundary and to the right of it form a convex point set; if there are any two points belonging to such a set all points lying on the straight line joining them also belong to this set, or in other words, the boundary is everywhere " convex to the origin ". This convexity is an important property: it corresponds to the assumptions one makes (explicitly or implicitly) in order to ensure consistency in an indifference map. Indeed, the boundary line has some of the features of an indifference curve. In the present case we are actually finding the minimum expenditure necessary to reach a given indifference locus defined by the linear constraints in the form of nutrient requirements. It is also possible to define income and substitution effects. For simplicity we shall consider only case (*c*) of Fig. 3. Assume that the price of bread falls, the horizontal axis on our diagram is compressed in proportion to the price reduction. If the lower line remains less steep than 45 degrees (negatively) the minimum is still at the point of intersection; its distance from the horizontal axis remains unchanged while its distance from the vertical axis will be reduced in the same proportion as the price. Bearing in mind that our axes measure expenditures it means that the quantities will remain unchanged and the decrease in total cost will be due only to the reduced expenditure on bread (Fig. 5). In Fig. 6, however, the lower line becomes steeper than 45 degrees and while the two lines still intersect, this intersection no longer gives

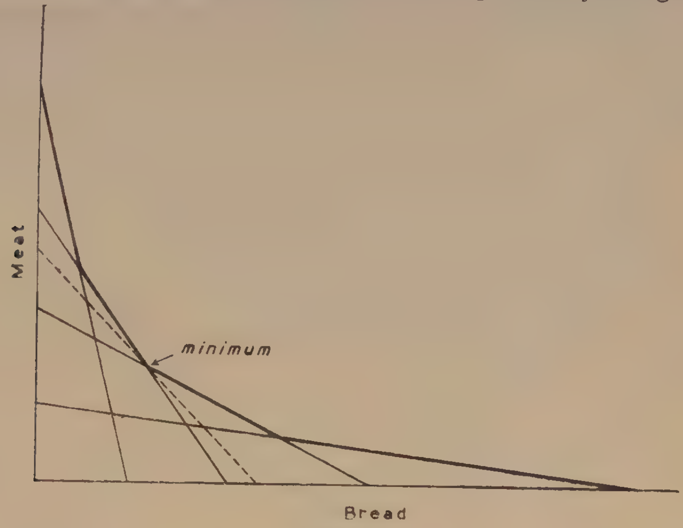
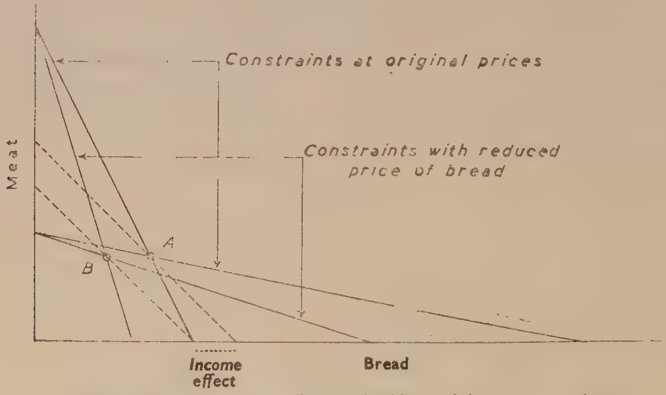


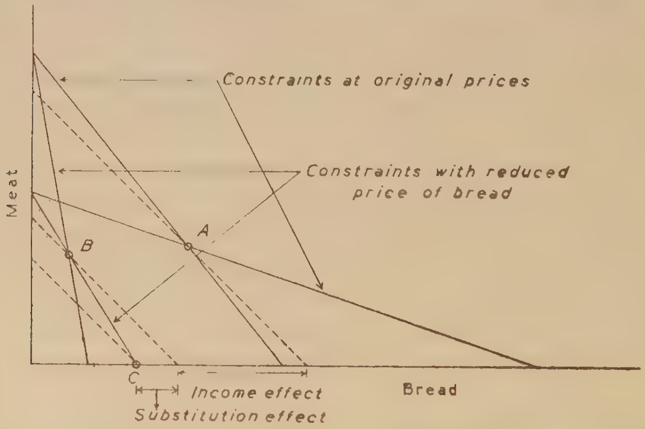
Fig. 4

the minimum which is now on the horizontal axis, and bread is substituted for meat (it can be seen that this turns the case 3 (*c*) into 3 (*b*)). The total reduction in expenditure can thus be broken down into two parts, one showing the fall in expenditure (with unchanged quantities) due to the fall in the price of bread, the other one the saving due to the substitution of bread for meat. The "demand function" for bread (showing variation in the *quantity* with changing price) would be a step function with a step at the critical value where the lower line in Figs. 3 to 6 has a slope of 45 degrees. (While the geometric demonstration may be plausible, a rigorous proof in this simple case is not difficult and will be given elsewhere.)


Constraints at original prices
Constraints with reduced price of bread
Meat
A
B
Income effect
Bread

A = Original minimum expenditure. B = New minimum expenditure.

Fig. 5


Constraints at original prices
Constraints with reduced price of bread
Meat
A
B
C
Income effect
Substitution effect
Bread

A = Original minimum expenditure C = New minimum expenditure.

Fig. 6

One further example is given in the Appendix, pp. 409-411.

4. SOME COMMENTS ON THE PRACTICAL APPLICATION OF LINEAR PROGRAMMING

While the above examples have some of the features of all linear programming problems there are yet other points of interest. The simplicity of the linear formulation has to be paid for in the large number of conditions to be taken into account in any real problem. This introduces considerable difficulty in practice: for while the answer is found by solving as many simultaneous equations as there are unknowns, the number of constraints (some of which may be equalities while there are always the inequalities due to the non-negative nature of the unknowns) and the "counting of equations" are not a sufficient guide in deciding on what solution to look for, i.e. which out of a number of possible sets of equations to solve, so that it becomes often necessary to proceed in some trial-and-error fashion.[1] This increases the amount of work—even with modern equipment—to such an extent that the discovery of an efficient method of computation often becomes a major objective.

Such linear programming problems can be translated into "games" in the sense of the *Theory of Games and Economic Behaviour* by J. v. Neumann and O. Morgenstern. It is in a way surprising to find the formal agreement between, say, the minimum food problem and a zero-sum two-person game[2] played between "Man" and "Nature", the one having foods for strategies, the other nutrient conditions (cf. also Appendix). A theory designed to a large extent for the study of imperfect market conditions turns out to be of great practical value in the solution of problems involving apparently straightforward maximising or minimising; for the present the two-person game (no coalitions) has proved most valuable. It may be remarked, in passing, that the *Theory of Games* has been found helpful even in the solution of comparatively simple problems in the absence of electronic equipment, since it makes it possible to reduce the order of magnitude of the computations.

The possibilities for application of the linear programming technique appear to be very wide. The principal advantages are that it combines theoretical simplicity with great flexibility in practice thus enabling one to take account of any known condition that a given programme is required to fulfil. Also, it specifies the kind of information needed (and what to do with it once it has been obtained). This information might be more readily available and can be more fully exploited by a method which distinguishes between production processes than by one which contents itself with the vaguer concept of production functions. Further implications are explored in Koopmans' paper (*l.c.*) where it is shown *inter alia* that if one knows the optimum routing of empty shipping one can compute relative freight rates such as would obtain under perfect competition (and establish in this way the optimum use of resources). The relevance of this to current economic problems, in the field of transport and beyond, needs no emphasis. Finally, in advanced communities where only a small part of all products appears in the form of final consumers' goods, the rest being intermediate products (or input) for further production, one can trace the effects of changing the final bill of goods through all the intermediate stages. One can discover what level of supporting activities is required and whether a given bill of goods constitutes a " feasible programme " with available resources and possible methods of production. (The original Leontieff input-output analysis is a special case of linear programming in that it does not allow for alternative methods of production. The question of minimum cost or maximum output does not therefore arise.)

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[1] cf. also Samuelson's discussion of the minimum food cost problem in the *Review of Economic Studies*, Vol. XIV, 1946–47, No. 35, pp. 41–43.

[2] For a good and reasonably simple introduction to the Theory of Games, see L. Hurwicz, "The Theory of Economic Behaviour", *American Economic Review*, Vol. XXXV, December, 1945, pp. 909–925.

It is equally important to mention what the linear programming technique does not do. First, it does not substitute the technician and mathematician for the economist. It is the economist who must pose the problems arising from the general interdependence of economic activities. More important, linear programming does not enable one to forecast what will happen or to estimate the parameters of economic behaviour ; it is concerned with what to do in order to achieve specified objectives optimally if the evaluation of factors and products is given. It applies equally to individual units and to systems of units when there is agreement on, or enforcement of, this evaluation.

Note.—As the literature is rudimentary—pending the publication by the Cowles Commission of a monograph on the subject[1]—very few references are given in the text. The main paper on the subject is that of M. K. Wood and G. B. Dantzig, " Programming of Interdependent Activities ", *Econometrica*, Vol. XVII, Nos. 3–4, 1949, pp. 193–211, where further references may be found.

APPENDIX

1. The Shipping Problem

There are available a_1 ships at port A_1, a_2 at port A_2; required are b_1 ships at port B_1 and b_2 at port B_2, where $a_1 + a_2 = b_1 + b_2$.

The travelling times are t_{11} from A_1 to B_1, t_{12} from A_1 to B_2, t_{21} from A_2 to B_1 and t_{22} from A_2 to B_2. If the numbers of ships moving between these ports are x_{ij} $(i, j = 1, 2)$, we want to find the minimum of

$$\sum_{ij} t_{ij}\, x_{ij}\ (t_{ij} > 0,\ x_{ij} \geqq 0)$$

subject to
$$\begin{aligned} x_{11} + x_{12} &= a_1 \\ x_{21} + x_{22} &= a_2 \\ x_{11} + x_{21} &= b_1 \\ x_{12} + x_{22} &= b_2 \end{aligned}$$

If we replace x_{12} by $a_1 - x_{11}$, x_{21} by $b_1 - x_{11}$, and x_{22} by $a_2 - b_1 + x_{11}$, we have to find the minimum of $C + (t_{11} + t_{22} - t_{12} - t_{21})\, x_{11}$, where C is a constant involving a_1, a_2, b_1 and the t_{ij}. The expression in brackets is the slope of the " cost curves " shown in Figs. 1 and 2. If this expression is positive (negative) the minimum is found at the lower (upper) limit of x_{11}. The lower limit is given by Max $(a_1 - b_2, 0)$, the upper limit by Min (a_1, b_1). In the general case where there are many ports A_i and B_j no such straight solution is possible, but the problem is relatively simple and can be solved fairly easily by trial-and-error methods.

2. The Formulation of the Nutrition Problem as a " Game "

Let there be given n foods and m nutrients. Let a_{ij} be the amount of nutrient j $(j = 1, 2, \ldots, m)$ per unit weight of food i $(i = 1, 2, \ldots, n)$. Let p_i be the price per unit weight of food i, and let b_j be the requirements of nutrient j per person per day. Then the problem is to find non-negative quantities u_i $(i = 1, 2, \ldots, n)$ such as to minimise $\sum_{i=1}^{p} p_i u_i$ (i.e. total food expenditure), subject to $\sum_{i=1}^{n} a_{ij} u_i \geqq b_j$ $(j = 1, \ldots, m)$ with $p_i > 0$, $u_i \geqq 0$, $a_{ij} \geqq 0$, $\sum_{i=1}^{n} a_{ij} > 0$ (for all j), $b_j > 0$ (for all j).

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[1] This monograph, *Activity Analysis of Production and Allocation*, edited by T. C. Koopmans, has now been published.

These restrictions are necessary in order to make the problem non-trivial and soluble : if $p_i = 0$, food i would be a free good, all nutrients contained in it would be supplied at no cost and the corresponding nutrient requirements would no longer have any real relevance. Also, prices cannot be negative. Similarly, neither quantities of foods u_i consumed nor the amounts of nutrients contained in them, a_{ij}, can be negative. If $\sum_{i=1}^{n} a_{ij}$ were equal to zero for any j, all a_{ij} must be equal to zero and in that case nutrient j could not be supplied by any of the foods under consideration. Finally, b_j, the amount of nutrient required cannot be negative and if it were zero that nutrient condition could be ignored.

Since $p_i > 0$ for all i one can set $x_i = u_i p_i \geqq 0$ for all i and if the nutrient conditions are to be fulfilled $\sum_{i=1}^{n} x_i > 0$. The m conditions $\sum_{i=1}^{n} a_{ij} u_i \geqq b_j$ (for all j) become then

$$\sum_{i=1}^{n} a'_{ij} x_i \geqq b_j \ (j = 1, \ldots, m),$$

where $a'_{ij} = \frac{a_{ij}}{p_i} \geqq 0$. The meaning of these substitutions is simply that x_i is the expenditure of food $_i$ (at given prices p_i) and that a'_{ij} is the amount of nutrient j obtained per unit expenditure on food i.

Next, in each inequality $\sum_{i=1}^{n} a'_{ij} x_i \geqq b_j$ one can divide through by b_j (since $b_j > 0$) obtaining the conditions $\sum_{i=1}^{n} a_{ij} x_i \geqq 1$ $(j = 1, \ldots, m)$ with $a_{ij} = \frac{a'_{ij}}{b_j}$, where a_{ij} represents now the relative fulfilment of nutrient requirement b_j obtained per unit of expenditure on food i.

Lastly, since $\sum_{i=1}^{n} x_i > 0$, minimising $\sum_{i=1}^{n} x_i$ is equivalent to maximising its reciprocal $1/\sum_{i=1}^{n} x_i$. With these substitutions the problem becomes :

$$\text{maximise } 1/\sum_{i=1}^{n} x_i,$$

$$\text{subject to } \sum_{i=1}^{n} a_{ij}\ x_i \geqq 1,$$

with $x_i \geqq 0$, $\sum_{i=1}^{n} x_i > 0$, $a_{ij} \geqq 0$, $\sum_{i=1}^{n} a_{ij} > 0$

$$(i = 1, 2, \ldots, n\,;\ j = 1, 2, \ldots, m)$$

With this formulation the matrix (a_{ij}) can be shown to be that of a zero-sum two-person game played between " Man " and " Nature " with a value of the game equal to $1/\sum_{i=1}^{n} x_i$ and a strategy vector equal to $x_i/\sum_{i=1}^{n} x_i$, i.e. " Man's " strategy vector corresponds to the relative distribution of expenditure over the available foods, with " Man " trying to maximise the reciprocal of food expenditure subject to the nutrient conditions imposed by " Nature ".

3. Optimum Utilisation of Productive Capacity[1]

Assume a firm with n workshops i $(i = 1, 2, \ldots, n)$ with a weekly capacity of c_i hours (all of these c_i may, of course, be equal to say, 48 ; the present procedure allows for a different number of hours capacity in each shop). The firm has to make a selection from m jobs j $(j = 1, 2, \ldots m)$, each of which yields b_j £ gross. Also each job j requires a certain number of hours from each shop i, say, a_{ij}. The problem is to select a number of those jobs offered to the firm in such a way as to maximise total gross profit, while keeping within the capacity of each shop. We make three assumptions :

(*i*) During any period of time, say one week, it is possible to take on only a fraction of a job, postponing the remainder for the following week or subcontracting it. This is a far-reaching assumption ; if, e.g., subcontracting is impossible the remainder of a job taken on becomes a first charge on capacity for the following week ; if it can be subcontracted there may be an additional element of cost involved. While this assumption of " fractional " jobs may, on the whole, not be too unrealistic in practice, a more appropriate solution could be obtained on a dynamic basis.

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[1] The author is grateful to Professor R. S. Edwards who suggested this problem.

(*ii*) Direct costs are assumed to be constant. If, e.g., only one-half of a job is completed, gross profit and costs will be only one-half of those for the whole job. This is probably true for wide ranges of output and certainly in the neighbourhood of capacity output which in the present formulation cannot be exceeded.

(*iii*) The question of internal timing will be neglected, that is, it will be assumed that no bottlenecks will develop in the sequence of the shops through which each job has to pass.

With these assumptions it can be shown that the problem is a standard one of the "linear programming" kind and capable of formulation as a zero-sum two-person game.

Let the intensity associated with each job be v_j, i.e., v_j is the fraction of job j which it has been decided to complete during the week under consideration. Clearly, $0 \leqq v_j \leqq 1$, since a job may not be taken on at all ($v_j = 0$) or it may be completed during the week ($v_j = 1$). Then if profit from each job j is b_j, we want to maximise

$$\sum_{j=1}^{m} v_j \, b_j \; (b_j > 0, \; 0 \leqq v_j \leqq 1)$$

subject to $\sum_{j=1}^{m} a_{ij} \, v_j \leqq c_i$ for $i = 1, 2, \ldots, n$

$$(a_{ij} \geqq 0, \; c_i > 0, \; \sum_{j=1}^{m} a_{ij} > c_i \quad \text{for all } i)$$

These restrictions indicate the limitation of capacity in each workshop i. The restrictions in brackets are also obvious. The profit on each job j must be > 0 (otherwise the job would not be considered at all); $a_{ij} \geqq 0$ (the number of hours required from any shop i for any job j cannot be negative). Total capacity in each shop must be positive, $c_i > 0$ (otherwise a job requiring a shop with zero capacity cannot be taken on at all—apart, again, from subcontracting). Lastly, $\sum_{j=1}^{m} a_{ij} > c_i$ means that if all available jobs are taken on fully they would exceed capacity in shops i (otherwise the restriction $\sum_{j} a_{ij} \, v_j \leqq c_i$ could be ignored for that particular shop i.

On making the substitutions

$$v_j b_j = y_j$$
$$a_{ij} / b_j c_i = a_{ij}$$

the problem becomes:

$$\text{maximise } \sum_{j=1}^{m} y_j \; (0 \leqq y_j \leqq b_j)$$

$$\text{subject to } \sum_{j=1}^{m} a_{ij}\, y_j \leqq 1 \;\; (a_{ij} \geqq 0, \; \sum_{j=1}^{m} a_{ij} > 0)$$

$$i = 1, 2, \ldots, n.$$

The meaning of y_j is simply the gross profit arising from job j times the fraction of the job that is going to be carried out, or in other words the actual profit to be obtained from job j on the week's work. The upper limit is then clearly the amount b_j if the whole job is carried out. In order to incorporate this upper limit in the general set of constraints we define $a_n + k_j = \delta_{kj}/b_j$, where δ_{kj} is the Kronecker symbol, viz.

$$\begin{aligned} \delta_{kj} &= 1, \text{ if } k = j, \\ &= 0, \text{ if } k = j, \text{ and } k \text{ runs from } 1 \text{ to } m \end{aligned}$$

With this definition we can write the constraints imposed by the upper limits of y_j as

$$\sum_{j=1}^{m} a_{n+k,\,j}\, y_j \leqq 1 \;\; (k = 1, 2, \ldots, m).$$

The whole problem can then be formulated as:

$$\text{maximise } \sum_{j=1}^{m} y_j$$

$$\text{subject to } \sum_{j=1}^{m} a_{ij}\, y_j \leqq 1, \text{ with } y_j \geqq 0, a_{ij} \geqq 0, \; i = 1, 2, \ldots n + m.$$

Since $\sum_{j=1}^{m} y_j > 0$, maximising this expression is equivalent to minimising $1/\sum_{j=1}^{m} y_j$. Again it can be shown that this problem is formally the same as that of finding the optimum strategy this time of player 2 in a zero-sum two-person game with matrix (a_{ij}) $(i = 1, 2, \ldots, n + m, j = 1, 2, \ldots, m)$ and a value of the game equal to $1/\sum_{j} y_j$.

London School of Economics.

The Science of Human Action

By L. M. Lachmann

This is Professor Mises' *magnum opus.*[1] It is a *magnum opus* in every sense of the word. Its majestic sweep embraces almost the whole field of economics and touches, at some point or other, on almost every social issue of our time. Not merely the formal-logical apparatus of economic theory, but the social structure of modern industrial society, its achievements, its weaknesses, and, most of all, its ideologies come under the relentless scrutiny of one who again and again confounds the smallminded within the precincts of our science and outside it. Perhaps his most outstanding merit is an intellectual courage which in these days of the cult of the "politically possible" has become all too rare. Throughout the 881 pages of the text the argument is presented with a pungency of style which rivals the clarity and vigour of his thought.

To render justice to a work of this nature on the few pages at our disposal is clearly impossible. All we can hope to do is to select a few topics for discussion.

When ten years ago Professor Knight reviewed the original German version[2] of the book in this journal[3] and found himself faced with the same dilemma, he selected one topic only for discussion, viz., the theory of capital. Quite possibly this is the best way of going about it. Undoubtedly the theory of capital occupies a prominent place in Professor Mises' doctrinal edifice. His theory of the trade cycle as well as his proof of the inadequacy of some recent "models" for a socialist market economy depend largely on his view of capital.

Yet we shall not follow the method Professor Knight adopted ten years ago. Unable though we are to take the reader on an extensive tour of the palace and to show him every part of the building, it seems to us wrong to confine our inspection to the basement. The wide vistas to be gained from some of the windows on the upper floors are too enchanting for that.

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[1] Ludwig von Mises: *Human Action. A Treatise on Economics.* 1949. xv + 889 pp. 42s.
[2] Ludwig von Mises: *Nationalökonomie.* Geneva, 1940.
[3] "Professor Mises and the Theory of Capital," *Economica*, November 1941.

Human Action is, of course, far more than a treatise on the methodology of the social sciences. But its centre of gravity certainly lies in its first seven chapters which are devoted to the discussion of method in the social sciences. We shall therefore have to deal at some length with the issues raised in these chapters.

I

In the study of human thought on any subject it is a fundamental principle that we cannot succeed in understanding what an author " really means " unless we understand the questions he is trying to answer. And an appraisal of Professor Mises' views on the methodology of the social sciences requires at least some knowledge of the history of the problems he is dealing with. In reading this book we must never forget that it is the work of Max Weber that is being carried on here.

Now, Max Weber's methodological writings had a dual purpose: to convince the historians who, at his time and in the German environment in which he grew up, were apt to claim a methodological monopoly for their " individualising " methods, that the social sciences offered just as much, if not more, scope for generalisation as the natural sciences; and that any historical " explanation " logically presupposes a generalised scheme of cause and effect. But at the same time he strove to uphold the methodological independence of the theoretical social sciences of the natural sciences by stressing the cardinal importance of *means* and *ends* as fundamental categories of human action.

This work has been carried on by others besides Professor Mises. There is Professor Hayek's famous essay on " Scientism and the Study of Society ", well known to readers of this journal.[1] There is the work of Dr. Schütz who has applied Husserl's phenomenology to the logical analysis of the structure of human action.[2] And there is, of course, Professor Robbins' *Essay on the Nature and Significance of Economic Science* (1932; 2nd ed. 1935), which firmly established the definition of our science in terms of scarce means and multiple ends.

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[1] In *Economica*, August 1942, February 1943, February 1944.

[2] See A. Stonier and K. Bode: " A New Approach to the Methodology of the Social Sciences ", *Economica*, November 1937.

It may be objected that this definition of the subject-matter of economics is too wide. At an election, for instance, each voter has one vote but more than one candidate to give it to; yet the problem is not usually regarded as an economic one.

Professor Mises' reply to such objections is that in our search for the causes of the market phenomena we observe, and the explanation of which is the primary task of economists, we have unwittingly strayed into the realm of *Praxeology*, the Science of Human Action. He therefore distinguishes between *Praxeology*, the Science of Human Action, and *Catallactics*, the science which deals with market phenomena (233). The theorems of the latter presuppose the categories of the former. In other words, what Professor Hayek has called "The Pure Logic of Choice" belongs to Praxeology rather than to Catallactics. In this way what we have come to regard as the main body of economics is seen to belong to two related but distinct fields. "Catallactics is the analysis of those actions which are conducted on the basis of monetary calculation. Market exchange and monetary calculation are inseparably linked together" (235).

Professor Mises claims *a priori* validity for the propositions of Praxeology. "Its scope is human action as such, irrespective of all environmental, accidental, and individual circumstances of the concrete acts. Its cognition is purely formal and general without reference to the material content and the particular features of the actual case . . . . Its statements and propositions are not derived from experience. They are, like those of logic and mathematics, *a priori*. They are not subject to verification or falsification on the ground of experience and facts. They are both logically and temporally antecedent to any comprehension of historical facts. They are a necessary requirement of any intellectual grasp of historical events" (32). At the same time "Praxeology conveys exact and precise knowledge of real things" (39).

These statements raise two fundamental questions: How can Praxeology at one and the same time be *a priori* true, and "convey knowledge of real things"? Secondly, even if no *a priori* validity is claimed for the propositions of Catallactics, is it true that all the fundamental economic theorems that would clearly fall into the field of Praxeology are, like logic and mathematics, *a priori* valid?

As regards our first question, we must remember that the " real things " about which we learn from Praxeology are human actions. They can be studied in two ways: we can study them, as it were, " from outside ", by observation and experience, like other phenomena of nature; or we can study them " from inside ", that is to say, we interpret them as the products of *plans*, as manifestations of a directing and controlling mind. Looked at in this way all human action has a logical structure. There is therefore such a thing as a Logic of Action closely linked to the logic of our thought. We act by virtue of the fact that we think before. " The real thing which is the subject matter of praxeology, human action, stems from the same source as human reasoning. Action and reason are congeneric and homogeneous; they may even be called two different aspects of the same thing. That reason has the power to make clear through pure ratiocination the essential features of action is a consequence of the fact that action is an offshoot of reason " (39).

Our second question raises a fundamental issue in epistemology. It is not merely a question of whether " means and ends " have the same epistemological status as, for instance, " time and space ". Behind it there lurks the even more fundamental question whether we can have any knowledge not ultimately derived from experience.

Fortunately this journal is not the proper place to raise such weighty issues in. *Economica* must not become a battleground for positivists and Neo-Kantians. It seems to us, however, that in this particular case it is possible to side with Professor Mises without taking sides on the wider issue. For we can, and in our opinion must, distinguish between different layers of experience. In economics we are concerned with the action of the adult householder and the business man. Even if we granted that our ability to distinguish between means and ends is the result of some kind of experience, it still remains true that this experience is not the experience gathered from spending one's income or running a business. Professor Mises is certainly right in holding that all such action already *presupposes* the distinction between means and ends.[1] We may therefore say that, whatever the source of knowledge from which the distinction is ultimately derived, means and ends are indeed " logically and temporally antecedent " to the household and business plans which economists study. They may have their root in a layer of (juvenile ?) experience, but it is a layer which precedes and underlies the layer with which we are concerned.

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[1] When he says: " There is no mode of action thinkable in which mean sand ends or costs and proceeds cannot be clearly distinguished and precisely separated " (40), we take him to mean: within the sphere of adult life, in particular household and business life. But what about games? Within each game the distinction can be drawn, but is this the " end " for which we play them?

II

Having learnt that Professor Mises regards Praxeology as methodologically similar to logic and mathematics, we might expect him to welcome the use of mathematical methods in economics. In fact, however, this is not so. On the contrary, the section on " Logical Catallactics versus Mathematical Catallactics " in the chapter on Prices, one of the most interesting and perhaps the most characteristic of the book, turns out to be a devastating criticism, not of mathematical economics as such, but at least of the methods currently in use by mathematical economists. Two classes of mathematical economists are the chief target of Professor Mises' onslaught.

There are, firstly, the econometricians trying to make economics a " quantitative science ". But " There is no such thing as quantitative economics. All economic quantities we know about are data of economic history. No reasonable man can suppose that the relation between price and supply is in general, or in respect of certain commodities, constant. We know, on the contrary, that . . . . the reactions of the same people to the same external events vary, and that it is not possible to assign individuals to classes of men reacting in the same way " (348). Secondly, there is the equilibrium school which refuses to study the Market Process, the central object of economics. " They merely mark out an imaginary situation in which the market process would cease to operate. The mathematical economists disregard the whole theoretical elucidation of the market process and evasively amuse themselves with an auxiliary notion employed in its context and devoid of any sense when used outside of this context " (352).

The reason for this confusion has to be sought in the inability of many economists to grasp the difference between the essential character of the natural sciences and that of the sciences dealing with human action. This difference is brought out in a characteristically Misesque passage :

"In physics we are faced with changes occurring in various sense phenomena. We discover a regularity in the sequence of these changes and these observations lead us to the construction of a science of physics. We know nothing about the ultimate forces actuating these changes. They are for the searching mind ultimately given and defy any further analysis. What we know from observation is the regular concatenation of various observable entities and attributes. It is this mutual interdependence of data that the physicist describes in differential equations.

"In praxeology the first fact we know is that men are purposively intent upon bringing about some changes. It is this fact that integrates the subject matter of praxeology and differentiates it from the subject matter of the natural sciences. We know the forces behind the changes, and this aprioristic knowledge leads us to a cognition of the praxeological processes. The physicist does not know what electricity 'is'. He knows only phenomena attributed to something called electricity. But the economist knows what actuates the market process. It is only thanks to this knowledge that he is in a position to distinguish market phenomena from other phenomena and to describe the market process" (352).

All this the mathematical economist ignores. In making equilibrium the central concept of his system "he merely describes an auxiliary makeshift employed by the logical economists as a limiting notion, the definition of a state of affairs in which there is no longer any action and the market process has come to a standstill . . . . A superficial analogy is spun out too long, that is all" (352).

In all this, to be sure, the word "causal-genetic" never occurs. Yet it is clear what Professor Mises is aiming at. The task of the economist is not merely, as in equilibrium theory, to examine the logical consistency of various modes of action, but to make human action intelligible, to let us understand the nature of the logical structures called 'plans', to exhibit the successive modes of thought which give rise to successive modes of action. In other words, all true economics is not "functional" but "causal-genetic".[1]

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[1] The two concepts were originally used by Professor Mayer in "Der Erkenntniswert der funktionellen Preistheorien," in *Die Wirschaftstheorie der Gegenwart*, Vol. II, Vienna, 1932.

" Logical economics is essentially a theory of processes and changes." And " The problems of process analysis, i.e., the only economic problems that matter, defy any mathematical approach . . . . The main deficiency of mathematical economics is not the fact that it ignores the temporal sequence, but that it ignores the market process. The mathematical method is at a loss to show how from a state of non-equilibrium those actions spring up which tend toward the establishment of equilibrium . . . . The differential equations of mechanics are supposed to describe precisely the motions concerned at any instant of the time travelled through. The economic equations have no reference whatever to conditions as they really are in each instant of the time interval between the state of non-equilibrium and that of equilibrium . . . . A very imperfect and superficial metaphor is not a substitute for the services rendered by logical economics " (353-4).

Two examples of the misinterpretation of economic phenomena resulting from the application of misleading mathematical metaphors are then given : Fisher's exchange equation, " the mathematical economist's futile and misleading attempt to deal with changes in the purchasing power of money " ; and Schumpeter's rather unfortunate " dictum according to which consumers in evaluating consumers' goods *ipso facto* also evaluate the means of production which enter into the production of these goods ".[1]

III

We now have to face the central issue of Professor Mises' methodology. " Logical economics is essentially a theory of processes and changes." But is there, can there be, a " Pure Logic of Change " ? In the field of human action we " explain " phenomena as the outcome of the pursuit of plans. Each plan is a logical structure in which means and ends are coordinated by a directing and controlling mind. But the plans of different individuals may be, and as a rule are, inconsistent with each other. Now, it is an undeniable fact that far too many economists are preoccupied with examining the consistency of plans without ever bothering to tell us how in reality men overcome inconsistencies brought to light by failure, how they set out to revise their plans in the light of their experience, favourable or unfavourable.

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[1] *Capitalism, Socialism and Democracy*, p. 175. See also Professor Hayek's criticism in *Individualism and Economic Order*, p. 90n.

In other words, there is a tendency in the economic theory currently in fashion to treat knowledge as a datum without explaining how knowledge is transformed as a result of the market process. This tendency is to be deplored. But if the transformation of knowledge is an essential element in the market process, then the latter cannot belong to the province of logical economics, for the acquisition of knowledge is *not* a logical process. How does our author overcome this difficulty ?

He has an answer of a kind, and we believe it, on the whole, to be a satisfactory answer. Unfortunately it is nowhere explicitly stated, and the elements of the answer have to be pieced together from passages and ideas scattered throughout the text of 881 pages. The explicit answer, on the other hand, which Professor Mises provides for us cannot be regarded as adequate.

According to our author the logical principle which coordinates the plans of different individuals is the division of labour. " The exchange relation is the fundamental social relation. Interpersonal exchange of goods and services weaves the bond which unites men into society. The societal formula is : *do ut des* " (195).

At first sight this suggestion does not appear very helpful. For the division of labour to serve as the fundamental principle of human interaction it would be necessary for everybody concerned from the beginning to *know* everybody else's needs, resources, and abilities. In a world of processes and changes this is clearly impossible. It would be possible only in that static world Professor Mises disdains. He thus appears to be confronted with this dilemma : his principle for the coordination of social action is immediately applicable only in equilibrium, while a " theory of processes and changes " would first have to explain how men gain that knowledge which enables them to adjust their action to the needs of others, and to make use of their abilities and resources.

Professor Mises' real answer to the dilemma lies in his conception of entrepreneurship and the function of entrepreneurial profits, a conception which is really dynamic and remarkably similar to Schumpeter's. Profits, those temporary margins between to-day's cost of complementary factor services and to-morrow's product prices, are signposts of entrepreneurial success. In a symbolic form they convey knowledge, but the symbols have to be *interpreted*. In this ability men differ widely; its comparative rarity is the ultimate cause of human inequality. "If all entrepreneurs were to anticipate correctly the future state of the market, there would be neither profits nor losses . . . . An entrepreneur can make a profit only if he anticipates future conditions more correctly than other entrepreneurs" (291).

The market process, to be sure, conveys knowledge through profits realised. But it also promotes the rise of those better equipped than others to wrest economic meaning from the happenings of the market-place, the ups and downs of prices, the fluctuations in stocks, the doings of the politicians, and of those (they will always be few) who know how to learn from the mistakes of others. In other words, the market process is closely linked with what Pareto called "the circulation of élites", perhaps the most important of all social processes. "One should not forget that on the market a process of selection is in continual operation. There prevails an unceasing tendency to weed out the less efficient entrepreneurs, that is, those who fail in their endeavours to anticipate correctly (580) . . . . This specific anticipative understanding of the conditions of the uncertain future defies any rules and systematisation (582) . . . . The resultant of these endeavours is not only the price structure but no less the social structure, the assignment of definite tasks to the various individuals. The market makes people rich or poor, determines who shall run the big plants and who shall scrub the floors, fixes how many people shall work in the copper mines and how many in the symphony orchestras" (308).

The essence of the matter is that the market process promotes the spreading of knowledge through the promotion of those capable of interpreting market data and of thus transforming them into market knowledge, and the elimination of those who cannot read the signs of the market.

IV

We said already that the theory of capital occupies a prominent place in Professor Mises' doctrinal edifice. We must therefore look at it closely.

Broadly speaking, his theory of capital is more or less identical with that of Professor Hayek in the *Pure Theory of Capital.*[1] Boehm-Bawerk's doctrine is not uncritically accepted. His wage-fund interpretation of the capital stock is rejected ; so is the " backward-looking " concept of the period of production. " The length of time expended in the past for the production of capital goods available to-day does not count at all . . . . The ' average period of production ' is an empty concept " (486). Moreover, Boehm-Bawerk's " demonstration of the universal validity of time preference is inadequate because it is based on psychological considerations. However, psychology can never demonstrate the validity of a praxeological theorem " (485). While in expounding his theory of the higher productivity of roundabout methods of production he " did not entirely avoid the productivity approach which he himself had so brilliantly refuted " (486).

The essence of Professor Mises' argument can perhaps best be expressed by contrasting it with, e.g., Professor Knight's theory of investment. For the latter a man who saves faces merely the choice between a present segment of a service flow and a permanent income stream. For Professor Mises the man faces a choice between a number of present goods and a large number of future goods all maturing at different points of time. But he has a scale of preference (" time preference ") which enables him to decide which combination of future goods he prefers to all others. Capital goods are thus future consumption goods *in statu nascendi*, and their valuation reflects the pattern of time preference between the various combinations of consumption goods of different degrees of futurity. The market rate of interest is the average rate of discount of future against present goods, the net result of these individual time preferences.

The question arises whether a form of economic organisation is possible in which there is a market for consumption goods, but no market for capital goods. Such a system has been advocated by the protagonists of the New Scientific Socialism. They would leave all investment decisions to a Central Planning Board, while output decisions about consumers' goods would be made by individual plant managers provided with " factor-price tables " and left with the general instruction to produce that output quantity for which market price equals marginal cost.

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[1] Macmillan, 1941.

Professor Mises does not find it difficult to dispose of these schemes. He shows that they rest essentially on a misconception of the function of the entrepreneur in a market economy. " The cardinal fallacy implied in this and all kindred proposals is that they look at the economic problem from the perspective of the subaltern clerk whose intellectual horizon does not extend beyond subordinate tasks. They consider the structure of industrial production and the allocation of capital to the various branches and production aggregates as rigid, and do not take into account the necessity of altering this structure in order to adjust it to changes in conditions " (703). To be sure, the entrepreneur " invests ", and he produces and sells output. But this is not all. He has another function which we all know but about which little is, as a rule, heard from economists : the " regrouping of capital assets " by buying and selling them, the incessant reshuffling of the combinations of complementary capital goods with which he works and which in their complexity form the ever-changing basis of the capital structure.[1][2]

V

Almost forty years ago Professor Mises, through a brilliant interpretation of an idea of Wicksell, became the first exponent of what has come to be known as " The Austrian Theory of the Trade Cycle ". In its fully developed form this theory contends that what happens during a boom is not merely that " incomes, output, and employment " rise and approach the " point of full employment ", but that the capital structure becomes distorted. In some sectors of the economic system new capital goods are piled up, in others, owing to what Irving Fisher called " the money illusion ", existing capital goods are not even being maintained. Under the relentless pressure of credit expansion

[1] " The operations of the managers, their buying and selling, are only a small segment of the totality of market operations. The market of the capitalist society also performs all those operations which allocate the capital goods to the various branches of industry. The entrepreneurs and capitalists establish corporations, and other firms, enlarge or reduce their size, dissolve them or merge them with other enterprises ; they buy and sell the shares and bonds of already existing and of new corporations " (703/4).

[2] Cf. L. M. Lachmann : " Complementarity and Substitution in the Theory of Capital ", *Economica*, May 1947.

sooner or later some resources become scarce, and others thus come to lack those *complementary* factors in the expectation of whose availability they had been produced. It is plain that the *heterogeneity of capital resources* of which during the boom some become scarce, some abundant, is of the essence of the matter.

For 15 years this theory has been under a cloud. During most of that time the stage was held by underconsumption theories. To many economists it began to appear unthinkable that economic crises could be caused by anything but " lack of effective demand ". Keynesianism in all its forms ruled supreme.

But of late it has been possible to observe a gradual change of heart. Undoubtedly the high tide of Keynesianism is receding. In a mood of eclecticism an increasing number of economists appears to be ready to reconsider the evidence. In this new situation it is perhaps not too extravagant to hope for general, or nearly general, agreement that booms may collapse and depressions come to an end, for all sorts of reasons, that the economic systems of modern industrial societies are far too complex to offer much prospect of " stable progress ", and that a theoretical one-model show must needs fail to give an adequate picture of the range of analytical tools required to cope with these baffling complexities.

This changing mood finds a clear expression in Dr. Hicks' recent book on the trade cycle.[1] Underconsumption crises are not impossible,[2] but they are unlikely to be frequent. The most important cause of cyclical downturns Dr. Hicks sees in the existence of the " ceiling ", i.e., in the existence of physical obstacles to unlimited expansion of output. Of course, it is far from our mind to suggest that Professor Mises' theory is identical with Dr. Hicks'. Clearly it is not. But there are striking similarities, and the divergences are often more apparent than real. Of this we shall give three examples.

In the first place, Dr. Hicks relies heavily on the Acceleration Principle which Professor Mises scorns. But the essence of the boom is clearly, in both theories, and in open contrast to all underconsumptionist teaching, that entrepreneurs make investment plans the real resources for which do not exist. The essence of the credit-expansion boom is not over-investment, but investment in wrong lines, i.e., malinvestment" (Mises, 556).

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[1] J. R. Hicks : *A Contribution to the Theory of the Trade Cycle.* Oxford University Press. 1950.

[2] For instance, the American situation in 1929 was, in our opinion, an underconsumption situation. In fact, most of the underconsumption theories of the last 20 years are simply " historical generalisations " of the memories of 1929–33.

Secondly, Professor Mises, to whom capital resources are essentially heterogeneous, finds it easier to define the nature of malinvestment. "The whole entrepreneurial class is, as it were, in the position of a master-builder whose task is to erect a building out of a limited supply of building materials. If this man overestimates the quantity of the available supply, he drafts a plan for the execution of which the means at his disposal are not sufficient. He oversizes the groundwork and the foundations and only discovers later in the progress of the construction that he lacks the material needed for the completion of the structure. It is obvious that our master-builder's fault was not over-investment, but an inappropriate employment of the means at his disposal" (Mises, p. 557).

Dr. Hicks, on the other hand, throughout the greater part of his book treats capital as homogeneous, and thus, at the critical point, lacks the sharpest-edged tool for making malinvestment explicit. But it is interesting to note that, when in Chapter X he embarks on a "further inspection of the ceiling", his homogeneity assumption breaks down. He not merely contends that "resources needed for making investment goods are becoming scarcer than the resources needed for making consumption goods" (Hicks, 128). Four pages later we are actually told: "we could easily have made a further advance by splitting up these ceilings, and allowing a sectional ceiling for every product". The important point is "that the accumulating real pressure will usually precipitate a downturn before the general shortage has become so acute as to induce a general inflation". In other words, some resources will become scarce while others remain plentiful. This is precisely the situation the Austrian theory was designed to meet.

Thirdly, as regards the position on the morrow of the downturn, Dr. Hicks again relies on multiplier and accelerator, while Professor Mises, spurning such Keynesian devices, preaches the need for readjustment. But again the contrast is more apparent than real. For Dr. Hicks the downturn expresses the tendency of the system to return to the long-run equilibrium level (the danger being that this may be "passed by"). For Professor Mises "readjustment" means more or less the same thing. "The malinvestments of the boom have misplaced inconvertible factors of production in some lines at the expense of other lines in which they were more urgently needed. There is disproportion in the allocation of nonconvertible factors to the various branches of industry." Now "One must provide the capital goods lacking in those branches which were unduly neglected in the boom. Wage rates must drop; people must restrict their consumption temporarily until the capital wasted by malinvestment is restored. Those who dislike the hardships of the readjustment period must abstain in time from credit expansion" (575–6).

As regards the depression, the main difference between the two authors consists in that Professor Mises is less afraid than Dr. Hicks of the effects of secondary deflation (Mises, 565–6). This is perhaps a matter for judgment from case to case rather than for theoretical generalisation.

In conclusion we may note that on the whole the Austrian theory has the broader scope, thanks largely to the fact that it is not tied to the homogeneity assumption. Dr. Hicks ignores existing capital goods and the problems of their versatility. We do not even learn whether his coefficients of production are fixed or variable. In the Austrian theory existing capital combinations can be reshuffled so as to release scarce resources. In fact, the constructive entrepreneurial task of the readjustment period consists largely in this, and not in indiscriminate investment. The core of the matter lies in this: the existence of unemployment and idle resources does not necessarily indicate "lack of effective demand"; it *may* indicate lack of complementary capital. When we reach his "ceiling" Dr. Hicks recognises this possibility; when we leave it its implications seem to fall into oblivion.

VI

A few words have to be said about Professor Mises' attitude to the wider issues of our time. Among the members of the governing class of present-day Western society he is not a popular figure. Politicians and bureaucrats dislike him; the intellectuals who produce the ideologies to sustain their rule abhor him. The Fabians worship other idols.

Equalitarianism is the favourite myth of our century. No thinking person can fail to notice that as societies become more civilised, inequalities are bound to increase. This is simply a corollary of the division of labour. As this reaches ever higher degrees, individual contributions to the social product become more and more specific and thus less substitutable. For is it not an accepted maxim of economics that the division of labour enables everybody to give of his best, and that, as it is carried to higher degrees of complexity, this, individual and highly specific, " best " tends to become very much better than anybody else's " best " in the same line? As inequality can thus be shown to be an inevitable concomitant of civilisation, arguments about its desirability or undesirability are seen to be largely irrelevant. Therefore " The inequality of incomes and wealth is an inherent feature of the market economy " (836). No prejudice, however, was ever shaken by argument, and our contemporary mythologists are no more given to critical reflection on major tenets than were their medieval ancestors.

But Professor Mises not merely refuses to accept the contemporary myth. He can see through it! " In endorsing the principle of equality as a political postulate nobody wants to share his own income with those who have less. When the American wage earner refers to equality, he means that the dividends of the stockholders should be given to him. He does not suggest a curtailment of his own income for the benefit of those 95 per cent. of the earth's population whose income is lower than his " (836).

Nor is much comfort offered to those who would create " equality of opportunity " through education, by " making educational opportunities more equal ". The abilities by which men outdo each other in a complex society have little to do with education. Entrepreneurial ability is not to be acquired in lecture-rooms. Here Professor Mises makes an important point. " It is not generally realised that education can never be more than indoctrination with theories and ideas already developed. Education, whatever benefits it may confer, is transmission of traditional doctrines and valuations; it is by necessity conservative. It produces imitation and routine, not improvement and progress. Innovators and creative geniuses cannot be reared in schools.

They are precisely the men who defy what the school has taught them" (311).[1]

The outlook for the praxeological sciences is not exactly bright. In our time they are bound to come into conflict with the dominant ideologies at almost every point. The high priests of "modern education" are unlikely to take kindly to any endeavour to substitute a scientific for a mythological view of the social function of education.

Yet, in the long run, society ignores the praxeological sciences at its peril. "The body of economic knowledge is an essential element in the structure of human civilisation; it is the foundation upon which modern industrialism and all the moral, intellectual, technological, and therapeutical achievements of the last centuries have been built. It rests with men whether they will make the proper use of the rich treasure with which this knowledge provides them or whether they will leave it unused. But if they fail to take the best advantage of it and disregard its teachings and warnings, they will not annul economics; they will stamp out society and the human race" (881).

It will be for History to judge.

University of the Witwatersrand.

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[1] As Professor Mises' detractors will probably dismiss this as "armchair philosophy", we may note what one of the most discerning students of modern business organisation has to say on this subject: "On the whole it looks very much as if the 'integrated' business education tends to make a man unfit to be an entrepreneur by paralysing his intellectual muscles, just as the training in mere technical skills of the business school of yesterday tended to unfit a man by destroying his vision. The more emphasis there is on 'administration', 'organisation', 'policy', 'analysis', etc., the more there is emphasis on the known 'right' way of doing things and on routines rather than on the new—in short on the accepted, the safe, the bureaucratic way rather than on the way of the risk taker and the innovator" (Peter F. Drucker: "The Graduate Business School", *Fortune*, August 1950, p. 94).

Book Reviews

Coal. By W. H. B. COURT. H.M. Stationery Office and Longmans, Green & Co. 1951. xii + 422 pp. 21s.

This book is part of the Official History of the United Kingdom in the Second World War; but it is "official" only in the sense that it is based on the records of government. Fortunately the authors of this series have been invited to illuminate the scene with their own critical judgment and Professor Court takes full advantage of this liberty. He might have been content to give a clear factual narrative without inquiring whether those who held responsibility had always acted wisely. He has certainly given a full and judicious account of the facts and in doing so has shown extraordinary skill in distilling the essence out of a voluminous mass of material. But he does more than this. He asks fundamental questions, and one feels that he goes as far as is possible in answering them. The style of the book makes it a pleasure to read.

The war quickly reversed the downward trend in the demand for coal which had been the cause of so much trouble in the 'twenties and 'thirties. No one realised in 1938 that in three or four years the country would be desperately short of miners. Coalfield labour which had been cheap for fifteen years was suddenly to be at a high premium again; a decaying industry was to be asked overnight to repeat the productive feats of its youth. But the past could not so easily be written off.

Professor Court takes as his main theme the measures adopted between 1939 and 1945 to bridge the "coal gap". An urgent matter in the early part of the war was to ensure adequate supplies for France; and the allocation by May 1940 was fixed at 1,500,000 tons per month. The fall of France was, in the words of Professor Court, "without exception the greatest single event in the history of the coal industry during the war" (p. 81). Not only did it make nonsense of the inland and export arrangements arrived at laboriously in the previous year but it was destined to rob the industry of a number of its best face workers. The return of mass unemployment had a bewildering effect on the mining communities, confirming their distrust of official propaganda about the importance of increased production. Whereas half of this redundancy was solved by the building of stocks, it was not possible in the emergency after Dunkirk to turn a deaf ear to the loud demands of the munitions factories and the armed forces for more men. The decision in October, 1940, to release young miners for the services was strongly criticised later on; but the pressure of the military crisis was too great. In the following months thousands of the most productive workers left the pits and never returned. In May, 1941, the prospect was so grim that it was necessary to introduce the Essential Work (Coalmining Industry) Order which, to quote Professor Court, " bound the worker more closely to the industry than had been known since the days of the annual bond in the North of England. . . ." (p. 140).

The average number of wage earners on colliery books fell from 766,000 in 1939 to 698,000 in 1941, a decline of 9 per cent.; output of saleable coal in the same period decreased by 12 per cent. Two factors could be isolated. First, the loss of manpower altered the balance of occupations in the pits in such a way that the number of shifts worked at the face declined by comparison with all shifts worked. Secondly, after the first two years of the war, output per man-shift at the face began to show a serious fall. One of the real merits of this book is that it makes a careful attempt to probe the causes of this trend. A menacing feature which was to grow worse with time was the ageing labour force: in 1941 40·6 per cent. were aged 40 or over as compared with 33·5 per cent. in 1931. It is illuminating to note how the coal budget was balanced. The supply of coal in 1944–5 was 190·5 million tons compared with 232·2 million in 1939–40. Home consumption was almost exactly the same in those two years, just over 184 million tons; but the amount used as house coal fell from 43·7 million to 33·6 million tons. The greatest relief was obtained by reducing overseas shipments and bunkers from 45 million tons to 6 million. The drastic system of priorities imposed on consumers was far more effective than the attempts to increase output, even allowing for the fact that by October, 1944, compulsion had brought as many as 100,000 men into the pits since 1941.

Declining productivity and mounting discontent were a constant source of anxiety to the Government. When we consider the stormy history of the industry ever since 1920, it is surprising that the pits remained in private hands throughout the Second World War. The mine managers had to serve two masters, the companies and the State; and the owners were still under the leaders who had successfully warded off nationalisation twenty years before. This had a bad effect on industrial relations. Professor Court is rightly critical of the award of the National Reference Tribunal in January, 1944, which became known as the Porter Award. " Instead of settling, it thoroughly upset the industry and led straight to the trouble which the Tribunal had hoped to avoid . . . the confusion created in the more poorly paid fields, such as South Wales, was great." The Tribunal had forgotten that " if the miner laid store by one thing in the payment of wages, outside of the old sore point of the relation between his wages and those of other workers, it was the conventional relations between the wages of man and man in the pit " (p. 255). Professor Court writes with knowledge and sympathy of the background of the mining communities, the hopes and fears of the workers and their families, and the deep emotional urges which feed on bitter memories.

On the important question as to whether the miners had enough nourishing food during the war, the book takes the official line and is not convincing. The Minister of Food never seems to have given serious attention to the problem. In Germany coal hewers were classed as " very heavy workers " and received large rations of meat and fats ; there is every reason to believe that the failure to apply the same principle in this country was an inexcusable mistake.

This book gives a penetrating analysis not only of the special war-time problems of the industry but also of those complex factors which constitute the coal question of the future. The author's observations on mechanisation, the wages structure, the miner's view of the functions fulfilled by his wage rate, and the various influences bearing on the course of output per man-shift deserve careful study. Despite the numerous inquiries into the industry's condition between the wars, the statistical information needed for policy-making was lacking until the Ministry of Fuel and Power was set up in 1941. The book concludes with these words : " Before the war, the coal industry was a sick industry, the coal mining community a sick society. The indifference and therefore the ignorance, extending deep into political and official circles, was the main underlying cause of the adoption of mistaken policies " (p. 391). Experience during the war and since has dissipated much of this indifference ; and, now that Professor Court's masterly survey is available, there is no longer any excuse for ignorance. Would that he could be persuaded to write a history of the industry during the first five years of nationalisation.

BRINLEY THOMAS.

Social Choice and Individual Values. By Kenneth J. Arrow. John Wiley & Sons, Inc., New York. Chapman & Hall, London. 1951. xi + 99 pp. $2.50.

Dr. Arrow has given proof in this book that he possesses a superb mathematical virtuosity. His handling of the logic of relations by symbolic methods is extraordinarily ingenious, and displays a perfection of rigour, economy, and lucid arrangement which are beyond praise. A logically inescapable framework of formal truths, within which all development of welfare economics (so long as it eschews interpersonal comparisons of utility) must proceed, is here established once for all. It is scarcely imaginable that this task could have been performed with such completeness and finality by any other method, and whatever impatience may sometimes be aroused by seemingly unnecessary resort to esoteric mathematical techniques, this particular application unquestionably justifies itself. The proofs can be followed by anyone who will give them sufficient concentrated attention, for, as with an intricate jigsaw puzzle, the fitting of the pieces together is immeasurably more difficult than the appraisal of the final result as correct. Nor does the merit of the book lie solely in mathematical elegance and power. Economists will hardly find elsewhere a more exact and intelligible statement of the crucial problem with which it deals, and it should be said that Dr. Arrow's command of expository prose is almost as good (and perhaps not so very much less rare) than his mastery of symbolic logic.

A *social welfare function* is defined as " a process or rule which, for each set of individual orderings for alternative social states (one ordering for each individual) states a corresponding social ordering of alternative social states ". Dr. Arrow then posits five conditions which our generally accepted value judgments suggest that an ideal social welfare function ought if possible to meet. These are, first, that the function should always yield mutually consistent answers no matter how great the *diversity* of the individual orderings (preference-scales) of alternative social states ; secondly, that when, *ceteris paribus*, any individual moves any one alternative social state to a higher position in his own ordering, the social ordering should do the same, or at least should not move this alternative to a lower position than before ; thirdly, that the social ordering of any two alternatives should be unaffected by any change in any individual ordering which does not alter the relation to each other of those two alternatives ; fourthly, that there should be no two alternatives which the social welfare function places in a given order regardless of individual orderings ; fifthly, that no individual ordering should be independently decisive for the social ordering of any two alternatives. The kernel of Dr. Arrow's book is the proof that no social welfare function can meet all these conditions at once.

This conclusion is embodied in the following General Possibility Theorem : " If there are at least three alternatives which the members of the society are free to order in any way, then every social welfare function satisfying Conditions 2 and 3 and yielding a social ordering satisfying [the requirements for consistency] must be either imposed [i.e., violate Condition 4] or dictatorial [i.e., violate Condition 5] ". The heart of the matter is that if there is no restriction on the degree of *diversity* of individual preferences, then there is no possibility, in general, of a social welfare function which will reflect these individual orderings, that is, will give " voters' sovereignty ", in a manner always consistent with itself. From this dilemma Dr. Arrow sees two general methods of escape : either we can abandon the requirement of rationality (i.e., self-consistency) in the social welfare function ; or we can impose restrictions on the individual orderings. In two remarkable chapters at the end of the book he considers various types of restriction on the individual orderings, and finally shows that some fundamental *similarity* of the attitudes of individuals towards the classification of social alternatives is the necessary and sufficient condition for a social welfare function, satisfying his five requirements, to be possible. In the last chapter he discusses with deep insight the possible philosophic and moral interpretation of this necessity.

Dr. Arrow has shown that a book on the foundations of economic theory can be written at a sustained level of absolute rigour and yet, for those who will take trouble, be intelligible and a delight to read.

G. L. S. SHACKLE.

The Conditions of Economic Progress. By Colin Clark. Macmillan and Co. Second Edition. 1951. xv + 584 pp. 50s.

This is not so much a revised edition as a new work. The first edition of the book, written in the late 1930's, was unfortunate in that it was not published until 1940, when most economists were too busily engaged to give it adequate attention. In his pioneer attempts at international comparisons of national income and its various components, Mr. Clark was then making bricks without straw. Rough as they were, the results were of fascinating interest and we could easily excuse the obvious deficiencies in the exposition—lack of clarity in definitions and methods and the indiscriminate scattering of tables, often without adequate references, throughout the text.

How different is the position now. The formation of economic policy requires a flow of statistical data, both national and international. No academic course in economics is given without reference to, indeed without dependence on, the statistics describing the actual economic system. The output of official statistics, particularly on national income and its composition, has developed to a point where it almost satisfies the new needs. Consequently, in preparing material for this new edition, Mr. Clark must have found himself with an embarrassingly large amount of straw for his brickmaking. The result is a much larger and more elaborate book. But, where we look for synthesis and conclusions, we are still furnished with a jumble of tables, presented as untidily as before. We are no longer so willing to accept this situation.

Despite this, the book is still an extraordinary compilation, presenting the work of a tireless and ingenious economic statistician. Nowhere else can we find so much information bearing on the problems of the various stages of economic development in different parts of the world. Some of the new compilations appeared earlier in the *Review of Economic Progress*, published for subscribers only by the Queensland Bureau of Industry, beginning with the issue of January, 1949. It is to be hoped that, as further revisions and extensions appear in this *Review*, it will become more widely known and available to economists everywhere.

Since Mr. Clark attempts international comparisons in real terms, the critical chapter is the second, on comparisons of the purchasing power of money. Mr. Clark published his computations on this subject in the first issue of the *Review of Economic Progress* (January, 1949), and there he made very few concessions to the non-statistician. He had the opportunity of a longer and more systematic exposition in writing the present book, but instead he took over the earlier published work almost unchanged—19 very concentrated pages, including two most elaborate tables. This chapter leads on to a much longer one on comparisons of real national product per man-hour. The treatment here is country by country, which is satisfactory enough. We look in vain, however, for a synoptic table bringing together the results for the various countries, such as was provided in the *Review* for April, 1949. One small grouse concerns the choice of the " international unit " of comparison, i.e., " the quantity of commodities exchangeable for $1 in the U.S.A. over the average of the period 1925–34 ". In fact, the single year 1929 is selected for international comparisons of purchasing power. It is not clear why the 1929 dollar could not have served as the international unit. As it is, we must always remember, in reading the text, that the 1929 dollar is 0.924 I.U. (and not one I.U.).

The middle chapters, on primary, manufacturing and tertiary industries, have not worn well. We are increasingly aware that tertiary industry is little more than a statistical residual in Mr. Clark's compilations. More important, we are now more than doubtful of the basic distinctions. Mr. Clark wants cut-and-dried distinctions, but he only gets his classification by being rather arbitrary. For example, on p. 423 in dealing with China, he gets a figure of about 70 per cent. to represent the proportion of the working population engaged in agriculture. In fact, the data he uses are from a sample showing 28,700 in agriculture and fishing and 6,300 in agriculture and subsidiary manufacture or trade, which he writes as " say 33,700 " in agriculture.

Of much more interest are the last three chapters of the book. Here Mr. Clark deals with relative incomes in different trades and occupations, with occupational mobility, with the distribution of income between the factors and with the accumulation of capital. For example, there is developed a most ingenious method (cf. the table on p. 523) for deriving a significant estimate of labour's share in the national product. The factual information he sets out is vital to any consideration of what the more developed countries can do to assist the less developed. Facts are often ignored in discussions of this topic ; there is now less justification than ever before for this omission.

R. G. D. Allen.

The International Economy. By P. T. Ellsworth. The Macmillan Company. New York, 1950. xxi + 922 pp. $5.50.

Professor Ellsworth calls this book a successor to his well-known *International Economics.* It is a courageous and stimulating attempt to write a text-book on International Economics, which comprises in one volume four main strands : an outline of the history of the economic events against which ideas about international trade and the foreign exchanges were developed, a history of the ideas themselves, an exposition of the application of modern economic analysis to international economic problems, and a consideration of present plans and institutions for international economic reconstruction.

The author makes a valiant attempt to relate the relevant economic analysis and development of theories to the background of historical facts. Thus Part I of his book, which is devoted to a description of the transition " From Mercantilism to Laissez-faire," is followed by an exposition in Part II of " The Theory of International Trade," i.e. the theory of comparative costs and of the effects of differing factor endowments. Similarly, the theory of the Gold Standard is expounded in the section of the book which deals with the development of the world economy and, in particular, of the British economy in the nineteenth century, while the theory of variable exchange rates is given in another section of the book after a description of the events of the nineteen-thirties. This method has the undoubted advantage of making it clear to students that the tools of economic analysis are in fact made to deal with real problems ; but it suffers from the disadvantage, which some teachers may judge to be the more serious one, of making the different parts of theory appear to be less related to each other than is the case.

The book is uneven in its merits. The exposition of the effect of different elasticities of demand for, and supply of, imports and exports upon the balance of trade when the exchange-rate is altered (Chapter 19) is admirably presented ; but, on the other hand, the present reviewer at any rate finds difficulty in understanding what Professor Ellsworth calls the " home-production ratio " curves (pp. 149–150) in his geometric representation of the effects of comparative costs and of reciprocal demand upon the volume of, and the real terms of, trade. At times the balance of space allotted to various subjects appears uneven. Thus it would appear out of balance to devote no less than eighty pages (Chapters 28 and 29) to a perhaps rather wordy discussion of the economic development of undeveloped territories but to make no reference at all to problems of state trading other than in the following sentence : " the I.T.O. Charter deals in some detail with such other related matters as subsidies, state trading, and administrative protection ". But it is always easier to criticise than to construct. Professor Ellsworth has covered in a single volume the whole immense canvas of International Economics—history of thought, history of actual developments, theoretical analysis, proposals for reconstruction; and it is inevitable that the result should be uneven.

J. E. MEADE.

World Trade and Investment. By DONALD BAILEY MARSH. Harcourt, Brace & Co., New York. 1951. xix + 594 pp. $6.75.

International Economics. By STEPHEN ENKE and VIRGIL SALERA. Prentice-Hall, New York. 2nd edition. 1951. ix + 724 pp. $6.65.

Much has happened on the international side of economics since the excellent books of Harrod, Haberler and Whale were first published. Comparative cost has lost its central position; income effects have regained an earlier emphasis; national income accounting has been applied to the balance of payments; multipliers have proliferated; dollar shortages, fundamental disequilibria and good-neighbour reasons for import discrimination have been discovered; and, finally, there has been an unprecedented burst of institutional invention. It was the task of the successor to Harrod, Haberler and Whale to record and estimate the advance. Professor Marsh performs this task to admiration. He reviews the whole ground and gives a straightforward and interesting introductory account of it all.

His book is arranged in three parts. It begins with a short factual survey which serves well enough to fix in mind the anatomy of trade and investment. It also enables the author to raise the issue of market process versus control as instruments of trading, an issue which permeates his book and about which the author has decided views which compel attention. The next section is concerned with theory, beginning with an integration of the concepts of the balance of payments with national income accounting and passing to an account of the foreign exchange market, an examination of price and income effects in the adjustment process of the balance of payments, two chapters on the foreign trade multiplier, two chapters on the theory of international values and a final chapter on monopoly. Apart from the discussion of the multiplier where Professor Marsh's pioneering work leads him rather far afield and the exposition is unnecessarily complicated, the treatment is even, lucid and vigorous, ably combining the older and newer strands of thought and with condescension to neither. In the final section, which is concerned with policy, Professor Marsh has chapters on the dollar shortage, E.R.P., I.M.F., I.T.O., and international investment.

Professor Marsh's theoretical section could be criticised because it is so largely in terms of statics or comparative statics and content with first approximations which require radical adjustment to proceed further. But these are criticisms of the present state of the subject and cannot be expected to be put right in any textbook. Given the space available, it is rare indeed that this section can be justifiably criticised although the treatment of the optimum tariff is perhaps one case for it appears to overlook the possibility of a structure of such tariffs, each corresponding to a different initial distribution of income. Again, each way of treating policy has its drawbacks. The reviewer felt in reading this section that the balance between detailed point and general analysis had perhaps sometimes been lost in favour of the former of these and not least in the treatment of I.T.O. Part of the detail on E.R.P. seems unnecessary. But who could have done better overall ? Criticisms of perspective and interpretation and detail apart, this is an important and useful book, written—and well written—by a scholar of learning and integrity.

The book by Professors Enke and Salera provides a readable and comprehensive text for the beginner who has a general rather than a specialist interest in international economics. It is true that at points the theory is a little old-fashioned and the analysis is sometimes superficial. But the latter at least was, possibly, hardly wholly avoidable in an introduction which moves easily from why nations trade to separate chapters on State trading, Benelux and the " so-called dollar shortage " and a useful appendix on foreign trade multipliers, and attempts a rounded account of each topic. There are excellent lists of references at the end of each chapter for those wanting more than the *aperçu* provided.

D. J. MORGAN.

Income and Wealth. Series I. Edited by Erik Lundberg. Bowes and Bowes. 1951. xv + 297 pp. 30s.

This volume brings together eight of the twenty-three papers prepared for the first Conference of the International Association for Research in Income and Wealth, which took place at Cambridge in 1949. Each of the eight papers is an authoritative contribution in some section of the field of national income and social accounting analysis.

The first paper of the collection, contributed by Richard Stone, represents the beginnings of a line of development which is being pursued at Cambridge and which holds great promise for the future : namely the elaboration of a formal system of accounts which would be applicable, without modification, to any individual transactor or group of transactors, and which could in particular be used with reference to any economically significant group, such as all enterprises, all households or all government agencies. (An important section of Mr. Stone's paper is concerned with considering the best way of grouping the transactors in any economy for social accounting purposes.) The system of accounts recommended in Mr. Stone's paper consists of three accounts, identified by means of the adjectives ' operating ', ' appropriation ' and ' resting '. The operating account of any transactor reconciles his sales, *less* his purchases, of goods and services with his ‘ operating surplus ’, which is the income arising as the result of these purchases and sales. The allocation of the operating surplus, together with any other income received by the transactor, is then shown in the appropriation account, which balances by virtue of the fact that income not appropriated in any other way is entered as ‘ saving ’. This item is then carried down to the resting account, which summarises all changes in the transactor’s assets and liabilities —a resting account being essentially the difference between a transactor’s balance sheets at the beginning and at the end of an accounting period. By way of illustrating the recommended system of accounts, Mr. Stone uses the figures in the White Paper on the *National Income and Expenditure of the U.K.* (published in April, 1949) to draw up a complete set of social accounts (in two versions) for the British economy in 1948.

Another Cambridge contributor to *Income and Wealth* is W. B. Reddaway, whose paper, like Mr. Stone’s, is interesting mainly on account of the grounds it gives us for expecting great things in the future. Mr. Reddaway is concerned with solving some of the logical and practical problems which would arise in the compilation of an index of production covering the ‘ final ’ output of *all* goods and services.

A further weighty contribution is by Simon Kuznets, who makes an exhaustive survey of the various ways in which the product of the government has been valued in different national income studies, and gives a reasoned defence of his own practices. In a much shorter paper J. B. D. Derksen describes and compares the methods used in different countries to make intertemporal comparisons of real national income. The remaining four papers, prepared by Gerhard Coln, G. Stuvel, E. F. Jackson, and Jan Marczewski, deal with the recent use which has been made of social accounting in the United States, the Netherlands, the United Kingdom and France, respectively, the last of the four contributions being enlivened by a stimulating analysis of what is implied in a calculation of an ‘ inflationary gap ’.

The reviewer owns to have profited greatly by his reading of this volume, but on just one point his mind, far from being clarified, is left even more confused. The point at issue is : Is it permissible to deflate the *whole* of a set of social accounts by suitable price indices, and if so, are any of the accounts thrown out of balance ? Derksen tells us (p. 260, footnote) that “ it is impossible to deflate all the items in the social accounts and still arrive at accounts which balance ”, but this imbalance is attributed to practical difficulties, not to any theoretical problem. Stuvel is even more explicit : his four ‘ balance equations ’, which in effect comprise a set of social accounts, “ should also apply to the volume indices if these are given their proper weights ” (p. 169). Now the balancing of any set of social accounts in money terms depends on the equality between a list of “ generating ” items, comprising the expenditures which generate the national income, and a list of 'disposal' items, showing what income receivers do with the income thus generated. These two lists of items, though adding up to equal money totals, are however not identical, since the latter list excludes certain income-generating expenditures (e.g., exports) and on the other hand includes certain purchases from foreigners and acquisitions of paper assets; why, then, must the basic equality necessarily remain undisturbed when the items not common to the two lists are each deflated by the most appropriate price index?

BRIAN TEW.

Cyclical Movements in the Balance of Payments. By TSE CHUN CHANG. Cambridge University Press. 1951. 222 pp. 18s.

Mr. Chang has chosen an exceedingly interesting subject of inquiry: the nature and causes of cyclical movements in the balance of payments. He distinguishes various types of country—industrial, agricultural, mining, etc., differentiating also between specialised and diversified production (and trade) structures. As the main determinants of the international supply and demand for commodities and capital, Mr. Chang takes income and the prices of imports and exports. In the light of common knowledge about the movements of income and import/export prices in these various types of country, and of abstract economic theory, he suggests tentatively certain *a priori* conclusions. Income changes, he suggests, probably exert a stronger influence than price changes upon the quantity of trade. Agricultural countries may be expected to have a higher income elasticity than industrial countries, because the former import largely investment goods. (In drawing this conclusion Mr. Chang is applying familiar domestic cycle theory: cycles cause a greater proportionate variation in the demand for investment goods than in the demand for consumer goods.) Agricultural countries, Mr. Chang points out, show cyclical movements in the balance of payments which are just the obverse of those observed in other countries. In prosperity, agricultural countries show a deficit on their current account covered by capital borrowing. In the slump they have to reduce their borrowing (or even make net payments in respect of past loans) and hence their current account shows a reduced import surplus (or even an export surplus). These cyclical movements in the balance of trade thus run counter to those of industrial countries. Mr. Chang's discussion of the role of capital in international trade is highly suggestive. His remarks tend towards a unification of two hitherto divorced half-theories: the analysis of commodity trade, and the analysis of international money markets.

In studying all these problems Mr. Chang has worked on three levels. First, descriptive treatment—the facts are supported by numerous figures (some of them are firm; others are ingenious estimates subject to considerable error). Second, the author uses a hypothetical economic model of the relationships that might govern quantities of imports and exports. The model springs from Lord Keynes's theory of employment and accords with Mrs. Robinson's application of that theory to the international field. It is on the basis of this hypothetical model, and in the light of the factual information, that Mr. Chang makes his "*a priori* generalisations" about how the balance of payments of different countries might be expected to react to trade cycles. All of this constitutes a stimulating and welcome contribution to the study of an important subject.

However, a large part of the book is devoted to work on the third level: the attempt to verify statistically the tentative hypotheses and to derive actual demand functions for imports and exports. It is at this point that the reviewer is unable to go along with Mr. Chang. There is no space to debate the point at issue. I can only express the opinion that the tools in Mr. Chang's hands are simply not adequate to the job he is trying to do. The multiple regression equation between quantity of imports (or exports), relative price of imports (or exports) and income, taken over a period of some fourteen years, does not seem to me to furnish us with any structural economic relationship. This difficulty is not unknown to Mr. Chang: "Theoretically", he writes (page 41), "the estimates are therefore not the best estimates of the true structural relationships existing in the data. However, the error is probably not large." With so few observations and such high serial correlation one would have guessed that the error of estimation might indeed be large, and Mr. Orcutt ("Measurement of Price Elasticities in International Trade," *Review of Economics and Statistics*, May 1950) has given reasons for supposing that such estimates are likely to be biased—downwards. But even before we get to the error of estimation, there is the prior question of whether one is approximating a structural equation at all. Since the system contains, not one precise economic relationship, but two or more stochastic relationships, the joint frequency distribution of the (random) observable variables need not give any parameters of the Demand (nor of the Supply) equation. For these reasons it is unlikely that the coefficients which Mr. Chang has computed give the elasticities of demand that he seeks (see, for instance, Haavelmo, "The Probability Approach in Econometrics" *Econometrica*, Volume 12, 1944; Morgan and Corlett, "The Influence of Price in International Trade: A Study in Method": paper read before the Royal Statistical Society, April 25th, 1951). Consequently, we cannot use any results obtained in this way to forecast economic movements or to guide us in questions of economic policy.

The difficulty which Mr. Chang is up against besets a growing number of economists who wish to pass from economists' "hunch models" to empirically tested results. If the tools which Mr. Chang used for his purpose have broken in his hand, one must remember that no clearly adequate set of implements was on offer to him. The lack of a working method of statistical inference of economic laws seems to constitute a real challenge both to econometricians and to economists.

H. MAKOWER.

The Combined Boards of the Second World War. By S. McKEE ROSEN. Columbia University Press. London: Geoffrey Cumberlege. 1951. 288 pp. 25s.

The sub-title of this book is appropriately "An Experiment in International Administration," and its chief interest will be to those who study the development of the post-war international economic institutions. The boards reviewed in turn are the Combined Raw Materials Board, the Combined Shipping Adjustment Board, the Combined Production and Resources Board, and the Combined Food Board. A brief conclusion draws a few comparisons and some very sensible morals.

If the part dealing with C.R.M.B. is a fair sample, the account is lifelike in its accuracy. Perhaps it does not sufficiently explain that, while the greatest difficulty in British eyes was the muddle of American departmental responsibilities, the Americans could not understand the extraordinary and heterogeneous relationships between various parts of the Commonwealth. From the latter point of view, the presence of the Harriman Mission in London (mercifully the only relic of the intended parallel C.R.M.B.) was of great assistance. I should have stressed the rapid improvement in, say, 1942 as American and British personnel came to know each other, and the deterioration after Mr. Crowley appeared on the scene. I wonder, too, whether Professor Rosen fully appreciates the fact that the lack of British statistics, while partly due to the Commonwealth looseness referred to above, was often due to British reluctance to put forward figures which the officials personally did not trust. (It is of course perfectly true that a rough shot was often much more useful than no shot at all, and British slowness to offer rough shots was to this extent unfortunate.)

These are but queries of emphasis, and they relate to only one part of the book. If the rest of it is as good, this is to be commended as a readable, trustworthy and just book.

R. S. SAYERS.

On the Accuracy of Economic Observations. By Oscar Morgenstern. Princeton University Press. Oxford University Press. 1950. ix + 101 pp. 12s. 6d.

Professor Morgenstern's short study "aims at examining the principles governing the accuracy of quantitative economic observations and, more widely, of economic statistics" (p. 3). In the first part (General Considerations) he argues that economic and social statistics are characterised by the fact that they do not arise from designed experiments, that the persons from whom such statistics are collected hide or distort information, that the scientific training of observers is inadequate without proper supervision, that large numbers of observers are used, that definitions are more uncertain than in the natural sciences, that computation, even if mechanical or electronic, is not free from mistakes, that data may not refer to the proper period of time, and that the setting out of questionnaires may be faulty. Errors arise from each of these sources, in addition to the usual sampling error, and moreover these errors may not be independent. A good case is made for the scientific reporting of social and economic observations, following the example of the natural sciences. Instead, we often find statistics published with specious accuracy, that is, either an unnecessarily large number of significant digits is given, entailing waste in processing and printing, or the data are useless for the purpose for which they are given as for instance an " accurate " official rate of exchange is useless when transactions actually take place at a widely different rate. Data derived from business accounts look accurate but they suffer from the same defects. Theoretical economists paid too little attention to the relation between their theories and the possible inaccuracy of quantitative information. A warning is added on the new dangers inherent in the use of high-speed computing machines. The second part gives an account of investigations of error in economic statistics in a number of fields, the greatest space being devoted to statistics of foreign trade.

Most of what Professor Morgenstern says is derived from simple common sense and it is therefore difficult to disagree with him ; but the study is unsystematic and shows every sign of being hastily written. Professor Morgenstern has had a wide experience in examining statistics and, as one of the former League of Nations' experts on international statistics, is obviously disappointed, but he completely fails to pass on his experience to the reader. It is not at all clear what type of reader is addressed. For an advanced student it is tedious to be referred to the fact that the number of pigs in Bulgaria on 1 January 1910 is not comparable with that on the same date in 1920 because this country adopted a different calendar in the interval (p. 19). On the other hand, only few readers could appreciate the allusion that to obtain information in social investigations is analogous to a non-strictly determined two-person game in Neumann's and his *Theory of Games* (p. 13).

On the broader issues, although Professor Morgenstern admits that the volume of social statistics is vast, he fails to recognise that the " universe " of social sciences may be changing and therefore difficult to measure, which is not the case of the exact sciences (which he invariably means when mentioning natural sciences). Further, he adopts the attitude that imports, national income, employment, etc., are pure concepts and then regards differences in definition as "errors". In fact, economic theory only requires an operational definition of such concepts, provided that this definition is applied consistently. Thus a series of figures on unemployment may be extremely useful for both the administrator and the theoretical economist, provided that the same definition is employed month by month, even if that definition differs from that adopted by another statistical agency.

The practical illustrations in the second part are somewhat confused as sometimes differences in definition are also regarded as "error" but at other times an attempt is made to explain these differences and the concept of error is then confined to differences in recording. However, Professor Morgenstern does not exhaustively investigate the definitions of the statistics he criticises; let us take, for instance, statistics of foreign trade, as he pays most attention to these.

A number of tables give trade between pairs of countries as recorded by each of them. According to Professor Morgenstern's scattered remarks divergencies are partly due to import duties, transport costs, time lags, differences in the classification of commodities, faulty reporting, diversion en route, re-export, and destruction en route. In fact, import duties are seldom included in valuation, differences in the classification of commodities are irrelevant for an examination of aggregate trade between pairs of countries, and diversion en route must have mainly theoretical significance. On the other hand, Professor Morgenstern does not mention that important differences exist between countries in the definition of special trade as against transit trade; and that differences exist in so far as alternatively the country of sale, destination or consumption is recorded. A number of points which puzzled him could be easily explained had he discovered that United States imports are recorded f.o.b. and Canadian exports ex-works, that Belgium has an important transit trade, and that the relative importance of transit trade and re-exports has in all countries diminished since 1913. All this explanation is readily available in footnotes and prefaces to the source material quoted, but instead of exploring these Professor Morgenstern repeatedly appeals to the reader's emotion in order to convince him that the discrepancies must be due to faults in recording. To give figures on discrepancies between recordings of the balance of trade expressed as percentage of one of the recordings is highly misleading: even with perfect data the existence of transport costs would cause an infinite percentage "error" in cases where the balance of trade is small. And why should the reader take it for granted that errors in merchandise trade statistics must be bigger than in statistics of gold movements?

That the discrepancies in trade statistics are largely due to differences in the practice of registering the country with which trade is conducted is indicated by the fact that for the world as a whole, as shown by the League of Nations, aggregate imports exceeded aggregate exports by a margin roughly corresponding to the difference between c.i.f.

and f.o.b. values. Yet Professor Morgenstern implies in his analysis that foreign trade statistics are quite useless for economic theory. Incidentally, the original purpose of the research (under contract to the United States Navy Department) was to explore inaccuracies in input-output tables and it is claimed that the foreign trade components of these tables were successfully discredited; in fact, input-output tables as hitherto published by Leontief and others include figures on the trade of one country with the rest of the world in the aggregate, and all the analysis reviewed here, which dealt with trade between pairs of countries, thus proved nothing relevant. T. Barna.

Addington, Author of the Modern Income Tax. By A. Farnsworth. Stevens & Sons Limited. 1951. xi + 140 pp. 21s.

Henry Addington, First Viscount Sidmouth, has found few champions until Dr. Farnsworth set himself the task of redeeming his reputation at least as far as financial genius—he deliberately uses this word—is concerned.

What distinguishes our modern income tax is not the idea of taxing income, which is as old as any direct impost, but taxation at the source, which implies obtaining information as well as deducting tax at the source. Pitt's income tax of 1799 was a charge on the total net income in the taxpayer's hands. He made an unsuccessful attempt in 1800 to introduce information at the source, but never evolved a scheme, nor even approved, of deducting tax at the source. The levy shifted to sources only in the revived income tax of 1803, whose author was Addington. Dr. Farnsworth's work is valuable in showing that we are wrong in looking upon Pitt as the father of the modern income tax. The arguments and chief quotations are somewhat overemphasised by considerable repetition.

Dr. Farnsworth makes the subsidiary point that Pitt habitually overestimated the yield of his tax, whereas Addington's forecasts proved right even when Parliament subsequently curtailed his bill. To the extent to which pessimism is a virtue at the Exchequer, Addington was undoubtedly a far better Chancellor than Pitt. In his desire to do justice to Addington, Dr. Farnsworth is less than fair to Pitt. If the former excelled in powers of calculation and administrative devices, the latter should receive credit for building up the hierarchy of expert officials who alone could successfully apply this unpopular but indispensable tax—a body of men of whom Dr. Farnsworth himself in our own day is a distinguished representative.

Walter M. Stern.

Corporation, Trust and Company. An Essay in Legal History. By C. A. Cooke. Manchester University Press. 1950. 206 pp. 15s.

The central theme of this book could be paraphrased as " a social pattern in search of a legal form ". The social pattern is joint stock enterprise, and, seen with the eyes of our time, its predestined legal form appears to be that of corporate personality. Yet it was only as a result of a struggle which extended over centuries that English law consented to make the idea of corporate entity available to joint stock companies. The dramatic story told by Dr. Cooke yields more than one lesson, the most important being that where it comes to a clash between legal tradition and economic necessity, the conflict, however protracted, must end with the defeat of the lawyers.

It was not as if the principle of corporate personality had been alien to English law. Dr. Cooke devotes the first few chapters of his book to a brief description of the medieval borough and gild systems, and also to those regulated and other companies which were so prominent in the economy and in the law of the mercantilist era. Yet there is little connection between these early manifestations of the corporate idea and the modern joint stock company. The history, one might even say the pre-history, of the latter does not begin before the second half of the 17th century. It is not surprising that the most interesting and the most successful chapters of the book under review are those which deal with the period between the Bubble Act of 1719 and the final victory of the corporate principle in 1844.

According to a cardinal rule of the common law corporate personality could never be claimed as a right. Its grant was a matter of discretion to be exercised by Crown or Parliament in the light of the public interest. The pretence on the part of joint stock companies, i.e. of a particular kind of partnership, to act as if they were endowed with legal personality was anathema in the eyes of the common lawyers. It was this attitude of the common law, far more than the ill-drafted and futile Bubble Act, which delayed for more than a century the marriage between joint stock enterprise and the corporate idea. Meanwhile, for a variety of reasons (one of them, as Dr. Cooke demonstrates, the belated appearance of the double-entry accounting system in this country) joint stock enterprise was unable to utilise in England the form of *commenda* or limited partnership which played so conspicuous a role in the development of commercial associations on the Continent. (It is difficult to understand why the author asserts at page 46 that the *commenda* had any influence on English law in the 17th and 18th centuries—there does not appear to be any evidence.) And thus it came about that the trust, the " maid of all work," filled the gap. Here, as elsewhere, it was equity and not the common law which achieved the adaptation of the medieval English legal system to the needs of capitalism. Nineteenth century legislation was of basic importance in many matters of detail, such as the regulation of winding up and the adjustment of the rights of shareholders, directors and creditors. But when in 1844 it accepted the principle of corporate entity, and in 1855 that of limited liability, it merely set its seal to a development which had long since been consummated by the autonomous forces of society, supported by the flexible machinery of equity.

Dr. Cooke tells the fascinating story ably and convincingly. This is one of those branches of history which make nonsense of our habit of pressing scholarly efforts into the strait-jacket of " disciplines " such as " law " and " economics ". It is of course both. One of the merits of the book is that it approaches its subject from both sides. It shows the impact of legal ideas on economic conduct no less than the influence of the trade cycle on the course of legislation, and it is a pity that it lets the final curtain fall over the Act of 1862 with which the history of modern company law begins. What is now required is a history of company law during the last 90 years which would be a continuation of Dr. Cooke's volume.

O. Kahn-Freund.

Demographic Yearbook, 1949–50. United Nations. 1951. 558 pp. 45s.

It is impossible to produce, in manageable size, a demographic yearbook which covers all topics in each issue. The principle of rotation of topics was thus enunciated by the U.N. Population Commission and is followed in this second issue of the U.N. *Demographic Yearbook*. Tables relating to illiteracy and to urban and rural populations have been omitted, and there are fewer tables relating to mortality. In return, the issue devotes far more space to fertility statistics, including tables analysing the broad results of various fertility censuses taken since 1930; ratios of children to women in the reproductive age-groups; and births by maternal and paternal age.

The new volume also shows a number of changes which will help the reader to appreciate and use the statistics published. An attempt has been made to give at least some indication of the quality of certain types of population data. In particular, in the tables dealing with total populations, the term ' census ' has been confined to those statistics which may be reasonably regarded as resulting from enumerations meeting certain primary requirements, while population estimates have been classified according to the method of estimation and the probable validity of the basic data. So far as vital statistics are concerned, official comments on completeness of registration have, where possible, been given in the relevant tables.

The reader of the volume will be helped by the provision of an index showing, at a glance, precisely what sorts of statistics are given for each country. At the same time the general value of the volume has been substantially increased by the inclusion, in a revised form, of a chapter (formerly published separately) on world population trends, 1920–49. Indeed the text chapters are all worth study, and should make most useful introductory reading for students of demography.

D. V. Glass.

SHORTER NOTICES

Études Économiques Allemandes. By J. Weydert, R. Levassort and P. Lebée. Librairie Armand Colin, Paris. 1951. 150 pp. Fr. 350.

While in the United Kingdom the Schuman Plan was from the first regarded as an industrial contrivance, to the French and German governments it has all along been regarded as primarily political, designed both to end the long feud between France and Germany and to set the course for the development of a federated Europe. The first two studies in this book, one on the future of the Ruhr and the other on I. G. Farben, after giving an account of past developments, suggest that this is the only satisfactory way of resolving the problems. The third study describes the Western German monetary reform. It concludes with the sentence : " Si le support du Deutsche Mark est, à l'heure actuelle, principalement la confiance de ceux qui le détiennent, on est en droit d'espérer et de croire que le travail acharné de ces derniers lui donnera rapidement des assises plus solides ".

Dollar Shortage and Oil Surplus in 1949–1950. By H. Mendershausen. Princeton University. 1950. 34 pp. Free on request.

This is the latest of the Essays in International Finance issued from Princeton University. In it Dr. Mendershausen gives a detailed account of the circumstances which led up to the imposition by the United Kingdom of discriminatory measures against dollar oil and the subsequent repercussions and negotiations. The ugly position that developed was saved by the improvement of demand which automatically solved the problem. " The reconciliation of American and British oil interests began in May, 1950. It proceeded piecemeal, company by company, in relation to various occasions and markets and on different terms. A general settlement on matters of principle was not reached ; and the conflict may flare up again at some future time." Dr. Mendershausen's careful survey will be amply justified if it helps towards bringing about a more cautious assessment of the benefits of any similar proposals in the future.

Balance of Payments Manual. International Monetary Fund. January, 1950. iii + 111 pp.

Balance of Payments Yearbook. 1948 and Preliminary 1949. International Monetary Fund. 1950. 428 pp.

The *Manual* is a revised version of the one first published in 1948, and provides the basis for regular reports of balance of payments data to the International Monetary Fund. The primary purpose of the *Manual* is thus to instruct member countries exactly what data to submit to the Fund. These instructions are set out in a series of notes defining "Current Account", "Capital Account", and each item within each of these accounts. The *Manual* is, however, indispensable to users of the Fund's *Balance of Payments Yearbook*; for it is just such precise instructions of how each individual classified item is to be interpreted that render the Fund's balance of payments figures meaningful.

The Fund's second *Balance of Payments Yearbook*, which has been compiled on the basis of the revised *Manual* gives current and capital accounts for 58 countries in 1948 and, in part, for 1949. This number includes some most interesting regional data on the countries' balances with different areas. In spite of the unavoidable roughness of some of these statistics, the *Yearbook* is an invaluable source of reference for anyone working in the field of international trade and finance.

Statistical Year-Book of the World Power Conference. Number 5. Edited by F. Brown. The Central Office of the World Power Conference, London. 1950. 20 tables. 128 pp. 30s.

The publishers are fully justified in claiming that this *Year-Book* contains the most comprehensive collection of closely defined and comparable statistics of power resources, development and utilisation available. This issue brings the annual statistics forward to 1947 and in many cases to 1948, and includes some additional and revised data on fuel and power resources. Both lay-out and editing maintain the high standard set by earlier issues. A perusal of the tables on reserves shows the extent to which reliable estimates continue to be unavailable for many important producers.

L'Agriculture en Grande-Bretagne. By G. Traversin, with prefaces by A. Piatier and Sir Alexander Gray. Centre National D'Information Économique. Two vols. 1948. 492 pp.

The purpose of these two volumes is to review for French readers the changes in British agriculture during the last hundred years and, in particular, those brought about since 1939. The first volume describes the government departments, the unions and societies, most directly concerned with agriculture; also agricultural legislation, land resources and climate, capital and credit, and farm labour supplies and earnings. The second volume brings together much scattered information on the structure of the farming industry, on land uses, changes in production of the principal foodstuffs, marketing, price control and rationing. The main conclusions reached are that wartime policy was a great success but that a change in policy in favour of the agricultural interests was already overdue long before 1939 and should, and will, now be made permanent.

A closer analysis of most of the economic issues involved, as well as of some of the social and administrative, is essential. And neither of the volumes is quite as "solidement documenté" as Dr. Traversin would obviously have wished.

The ABC of the Foreign Exchanges. By Norman Crump. Eleventh Edition. Macmillan. 1951. viii + 403 pp. 12s. 6d.

The standard work of Clare, on which this book is based, was published as long ago as 1892, and successive revisions have made it almost unrecognisable. It is in fact now not *Clare* but *Crump on the Foreign Exchanges*. The present edition at least maintains previous high standards. It is a severely factual survey, but the facts are given with obvious appreciation of their relative significance, they are closely compressed, and the whole is readily intelligible and readable. The chapter on the Sterling Area is particularly commendable as an up-to-date and lucid statement. Chapters are included on the European Payments Union and the 1949 devaluations.

Palace of Industry, 1851. By C. R. Fay. Cambridge University Press. 1951. 156 pp. 15s.

This is very much more than a pretty Festival book. It is a weightily-documented, if brief, account of the genesis of the Exhibition, public reaction to it both before and during the event, and (an otherwise neglected aspect) the results both direct and indirect. The whole is enriched by Dr. Fay's wealth of knowledge of Britain's economy in the 19th century: he sees, for example, the Crystal Palace as an early example of standardised production, with interchangeable parts; and he sees the glass production as something technically impossible fifty years earlier. On the results of the Exhibition, Dr. Fay easily disposes of Mr. Christopher Hobhouse's dismissal of the Exhibition as "just a glorious show". Department stores and the railways, Cook's Tours and social contentment—and the South Kensington we know: these at least were substantially affected.

The book is beautifully produced by the Cambridge University Press.

Greatness and Decline of Planned Economy in the Hellenistic World. By Luigi Einaudi. A. Francke, Berne. 1950. 48 pp.

This work is little more than an epitome of Rostovtzeff's *Social and Economic History of the Hellenistic World*, with special reference to Ptolemaic Egypt, by a writer who admits having no specialised knowledge (p. 44) and shows no sign of acquaintance with the sources or even with other modern writers on the Hellenistic period. It is difficult to see what useful purpose such a publication can serve. It appears to be intended as an indirect attack on "planned economies" in general. "Arbitrary power," says Einaudi (p. 47), is "fatally inherent to any kind of planned economy". The unsuspecting reader should be warned that the " planned economy " of Hellenistic Egypt, run as a business concern with the sole aim of increasing the wealth of its ruler and the privileged class which surrounded him, bears no resemblance to the " planned economies " of the contemporary world.

The translation shows a persistent and irritating disregard of English idiom, and there are a number of misprints.

Technological Progress and Economic Development. By J. B. Condliffe. Ranjit Printers and Publishers, Delhi. 1951. 62 pp. 3s. 6d.

This pamphlet contains three lectures delivered before the Delhi School of Economics by Professor Condliffe. Only the first is strictly on the subject indicated by the title of the pamphlet. In it Professor Condliffe sets out some of the effects on economic organisation of the scientific revolution of to-day. It is stimulating, but not all of his generalisations can command agreement. There is, for instance, a proneness to regard " state socialism " and " private enterprise " as virtually indistinguishable ; and the reference to the changes in the financing of American firms would gain if the period he envisages were made clearer.

The remaining two lectures set out with clarity the motives governing American foreign economic policy, and the political and institutional framework within which it is formed.

International Survey of Social Security. International Labour Office, Studies and Reports, New Series, No. 23. Geneva. 1950. v + 236 pp. 9s.

This report summarises and compares the social security provisions of 45 member states of the I.L.O. This is done by a number of useful tables surrounded by appropriate text in which the various definitions of methods of social security provision are given. Although full details are provided of the scope of individual social security schemes, of the nature of individual services and of the organisation of administration, only 7 pages are devoted to discussion of financial organisation. In consequence the book is probably of more interest to the student of social administration rather than to the economist.

Handbuch der Finanzwissenschaft. (Second enlarged edition.) Book I. Parts 1–5. J. C. B. Mohr (Paul Siebeck), Tübingen. 1950. 80 pp. Dm. 4.80.

The first edition of this series of studies on every aspect of public finance appeared some twenty years ago. The new edition will consist of some four volumes and the first of these, of which this contribution is a part, will include articles on the history of the theory of public finance and discussion of modern techniques of budgetary policy.

The introductory essay by Professor Gerloff is of a very general character. Future contributors will include Professors Gerhard Colm, Welinder, Erwin v. Beckerath and Kurt Heinig, and Mrs. U. K. Hicks will contribute an essay on the British financial system from 1800 until the present day.

Economic Aspects of Atomic Power: An Exploratory Study under the Direction of Sam H. Schurr and Jacob Marschak. Cowles Commission for Research in Economics. Oxford University Press. 1951. xxvi + 289 pp. $6. 40s.

The Cowles Commission, on the initiation of the Committee on the Social and Economic Aspects of Atomic Energy of the Social Science Research Council, is responsible for this weighty volume, in which the possibilities of peaceful use of atomic energy are soberly examined. The broad results are very much what one expected: the replacement of coal-burning furnaces by nuclear piles in the larger electricity generating stations and some extension of district heating are the developments most likely to prove economical within the next generation or so. The book includes very thorough discussions of the implications for the metal industries (notably iron-smelting) of the consequential cheapening of electric power. The contributors have been commendably careful to elaborate their assumptions and to indicate the changes that might be expected if their major assumptions proved unduly pessimistic. Altogether a workmanlike and valuable contribution to the subject.

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